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The PUBLIC HEALTH REPORTS are issued weekly by the United States Public Health Service through its Division of Sanitary Reports and Statistics, pursuant to acts of Congress approved February 15, 1893, and August 14, 1912.

They contain: (1) Current information of the prevalence and geographic distribution of preventable diseases in the United States in so far as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other communicable diseases throughout the world. (2) Articles relating to the cause, prevention, or control of disease. (3) Other pertinent information regarding sanitation and the conservation of the public health.

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PUBLIC HEALTH REPORTS

VOL. 45

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NO. 1

APPORTIONMENT OF FINANCIAL AID FOR COUNTY HEALTH WORK

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INTRODUCTION

There is rapidly developing in the United States a plan of local health organization commonly known as the county health department. Under this plan the rural portions of the county, as well as the contained cities and towns, are served by a single health department. These departments have developed, in most instances, under the leadership and guidance of the State health department.

Financial aid from the State and other sources outside the county has played an important part in the development and stabilization of this movement; yet there does not seem to have been developed an equitable plan of apportionment which could be applied successfully under varying conditions.

PURPOSE OF STATE AID ¹

In general, there are three major ends to be served by any system of subsidies from central to local governments for health work: First, a subsidy may be used to encourage the initiation of new projects; second, a system of aid provides a desirable channel through which the central health agency may discharge its responsibility to the local unit of government; third, the subsidy can ease the burden of relatively poor counties and thus make possible a more uniform grade of continuing service.

ADMINISTRATIVE AND ECONOMIC CONSIDERATIONS

Administrative practicability.—It is quite important in the projection of a program that local authorities know at the outset what support they may expect over a period of years, barring, of course,

¹ All funds from extra-county sources are classed as State-aid funds.

unexpected acts of appropriating bodies. If the exact amount of the grant can not be stated, at least there should be established a fixed rule for apportioning such funds as may become available and for fixing such increases or decreases of subsidy as may be contemplated.

Political expediency makes it urgent that all counties share in the subsidy; the difference in need can be compensated for by regulating the amount allotted to a county under given circumstances. It is also quite desirable that upper and lower limits be placed on the aid in order that the State may be assured of an appreciable interest in each unit, but yet not be required in any case to assume more than a reasonable share of the cost. The subsidy plan should be so designed as to encourage counties to increase their health activities continually rather than to reach some fixed goal and stop there. It might also be stated that the plan should not inflict a penalty upon the county for its willingness to make desirable expenditures.

Economic soundness.—The requirements are, first, that grants be distributed with regard to the resources of the various counties, and, second, that grants shall not encourage wastage of either State or local funds. The application of the first principle is difficult, for there is no satisfactory method of estimating ability to pay. In most counties the major portion of the revenue is derived from a certain tax rate on the property valuation. The State, in turn, uses this valuation in fixing the State property tax rate.

Even though property valuation is not always a true index of resources, it would be impracticable for the State health department to adopt an index of economic resources other than that recognized by the State and county in their general fiscal policies. The second economic requirement, that the distribution of the subsidy should encourage economical rather than extravagant expenditures, can be effected in two ways: First, by making the grant contingent upon the local health department's meeting certain standards of organization and performance; second, by arranging the apportionment so that a county of small population will find it advantageous to combine with others to reduce the fixed costs of administration.

MEASURE OF NEED

Two questions are intimately involved in equalization: How much service or what budget should be considered adequate for a given county? and, What part of the cost should be met by outside aid?

There is no exact measure of need and no unanimity of opinion regarding a standard of adequate service. A tentative appraisal form for experimental use in rural health practice has been developed by the American Public Health Association, but there seems to be no practical way of translating these standards into financial terms,

since we have no generally applicable data on the cost of rendering health service in rural areas. The number of people to be served is at present the only available definite numerical index of the quantity of service needed.

The measurement of need for financial assistance must, of course, be relative. We may postulate a certain type or types of local health organization, either uniform or varying with the size of the population served, or funds may be granted on the basis of population without regard to the type of organization. In either instance equalization will be effected by varying the amount of aid in accordance with the relative financial position of the individual county as compared with other counties of the State.

GENERAL PRINCIPLES OF EQUALIZATION

Equalization on the basis of type of organization.—Where this principle is followed, certain standards of personnel and expenditure are established by the State, such standards being fixed or variable. The State contributes a flat amount and requires that the county levy a specified tax rate. If necessary, the State will add to its flat grant an additional amount sufficient to complete the standard budget. If a fixed standard of organization be adhered to under all circumstances, the per capita cost of serving small population groups becomes excessive. Since low assessed valuation and a small population not infrequently exist in the same area, the State may be required to bear an inordinate share of the cost. Unless the counties of a State are fairly uniform in population and wealth, it practically becomes necessary to establish more than one standard of service and to develop a graduated scale of subsidy which will take these two factors into account.

Equalization on the basis of per capita budget.—According to this principle, cost is figured on the number of individuals served. The State establishes a certain standard per capita expenditure without regard to the type of organization which will be obtained. The State contributes a minimum amount per capita; the county is required to levy a certain tax rate; then the State, if necessary, adds to its fixed minimum contribution an additional amount sufficient to produce the desired total per capita expenditure.

Clearly, a given per capita expenditure will not provide equal service in population groups of different sizes; yet it has the very desirable tendency to induce smaller counties to combine into districts,² thus making possible a higher grade of service at reduced outlay by spreading costs of administration over a larger population.

¹ "District" as used here and elsewhere in this paper refers to the combination of two or more counties into one unit for the purpose of local health administration and should not be confused with districts used by the State health department in its general administration.

Choice of methods.—The choice between the standard organization basis and the per capita basis of apportionment would seem to hinge upon a broad question of policy, namely, whether the county is to be the only unit for health work, or whether the formation of districts embracing two or more counties is to be encouraged in cases where individual counties are small. Considerations of economy and efficiency of administration favor the per capita basis of apportionment where the population unit can be regulated by combining counties into districts. On the other hand, if every county is to be a separate unit, the standard organization plan is obviously fairer, as it takes account of the higher proportion of a small county's budget which is absorbed by the fixed costs of an administrative organization.

Additional factors.—In the foregoing discussion of indices of financial aid, no account has been taken of the variation in cost of health protection service according to density and accessibility of population, and various environmental conditions which may be conducive to the spread of disease. It is, of course, possible to devise a formula which will take account of the area to be covered by a health unit, yet it is difficult to determine how much weight area alone should have in determining a county's allotment of subsidy. The other environmental factors which affect the cost and quantity of service are even more difficult to measure.

Ability of county to meet needs.—There is no absolute measure of ability of counties to meet their needs. It remains for the State department of health to determine the total funds which can be made available.

The practice of education departments in many States is to establish as the basic tax to be levied by all counties, that rate which will enable the average county to obtain a theoretical adequate school budget, equalization subsidy being apportioned only among those counties which are below the average in wealth. Another plan is to choose as the "key county" one at or near the top in point of wealth, equalizing subsidies being given to all counties less wealthy than the "key county." This principle can be followed exactly in any plan of subsidy for health work which sets up a definite budget for each county, whether the budget be determined on the basis of a standard organization or of a certain per capita expenditure.

For reasons of expediency rather than of logic, it may be desirable to take into account the tax burden to which the wealth of the county is already subjected. The natural counter argument is that the State health department should not have to assume a county's burdens for which it is in no way responsible, and that, furthermore, a high tax rate is often only a reflection of past extravagance and mismanagement of the county finances. Justly or unjustly, it can not be denied that the already existing demands on a county's resources

do affect its ability and much more its willingness, to assume further obligations. It is debatable whether or not this factor should be taken into account in determining subsidies. Some of the specific plans discussed in succeeding paragraphs include it and some do not.

In practice, the choice of a standard of adequate service is limited by the basic tax rate which would be required. To set the minimum standard too low would mean withdrawing State aid from many areas which should be assisted in the development of services beyond the minimum standard.

PAYMENT OF FUNDS

In the actual allotment of funds there are several methods of figuring the grant: (1) By a per capita grant; (2) by payment of a part of the salary of the health officer or other workers; (3) by a grant of a fixed percentage on the local appropriation; (4) by payment on the basis of specified services rendered, the so-called "cost-equivalent" plan. The principle of differential subsidy might easily be incorporated into any of the above systems of disbursement. The State, however, should have it clearly understood that differences in commitments are solely to smooth differences in local resources, and do not represent an attempt to place different values on the same service.

ILLUSTRATIVE EXAMPLES

The following examples show various possible ways of applying the principles which have been discussed. They are not set forth as final or exhaustive, but as suggested adaptations to different situations.

A. SUBSIDY ON THE BASIS OF TYPE OF ORGANIZATION³

Plan No. 1.—A standard 3-piece (or larger) organization is established as the minimum with which each participating county shall be provided. Any county levying a certain tax rate per hundred dollars valuation of property shall receive from the State the difference between the amount so raised and the cost of a standard organization. This plan provides a given organization for every county, regardless of population. It takes account of ability to pay, but not of the amount of service needed. It would be applicable to counties of approximately equal population, but would not operate to provide a uniform standard of service in counties differing greatly in population. In order to assure the wealthier counties of some subsidy, the plan might be modified by granting a fixed sum to every county and equalization in addition if needed.

³ This is essentially the plan followed in Alabama. (Cannon, Douglas L.: *The Problem of Finance in Rural Health Practice*. Am. Jour. Pub. Health, May 1929, pp 535-537.)

A concrete example may clarify the foregoing outline. Let us assume that the standard organization chosen will cost \$7,000 per year and that the basic tax is fixed at 5 cents per \$100. A flat sum of, say, \$2,000 will be given to every participating county. In case the proceeds of a 5-cent tax in a given county fall short of the \$5,000 remaining to be raised, the State will make up the deficit. In this way every county will be able to obtain at least a \$7,000 budget by levying a tax of not over 5 cents.

Plan No. 2.—Instead of a uniform organization for all counties, there is established a sliding standard of personnel according to the population of a county. Any county levying a specified tax rate shall receive from the State the difference between the amount so raised and the cost of the standard organization for its population. This plan takes account of both ability to pay and amount of service needed. Like Plan No. 1, it could be modified by granting a fixed sum to every county and additional equalization if needed.

To illustrate the working of this plan, let us take two hypothetical counties, one of 10,000 population and the other of 20,000, and assume that the standard budget for the first county would be \$10,600 and for the second, \$13,700. A 5-cent tax is levied by each county, yielding, let us say, \$9,000 in each case. The apportionment of funds would then be as follows:

Population of county	Proceeds of 5-cent local tax	Fixed subsidy from State	Equalization grant	Total budget
10,000.....	\$9,000	\$2,000	None.	\$11,000
20,000.....	9,000	2,000	\$2,700	13,700

Plan No. 3.—Under Plans 1 and 2, the State would not aid counties to exceed a predetermined standard. In order to assist counties in developing beyond a minimum standard, two or more standards of organization may be set up and a higher local tax levy required to entitle a county to equalization up to a higher standard budget.

Referring to the two counties used to illustrate the preceding plan, it might be provided that by levying a tax rate of 7½ cents instead of 5 cents, these counties would receive equalization up to budgets one and one-half times as large—namely, \$15,900 and \$20,550, respectively, instead of \$10,600 and \$13,700. In this way any county willing to pay more than the minimum tax rate would receive proportionately more aid.

B. SUBSIDY ON THE BASIS OF INDIVIDUAL PERSONNEL EMPLOYED

Plan No. 4.—A specified amount is contributed by the State toward the salary of each worker employed in the local organization, the

amount being different for different classes of personnel. Equalization is effected by varying the amount paid on each class of salary according to the wealth (assessed valuation) of the county or district. A scale of subsidies on this basis is given in the accompanying table:

Hypothetical scale of subsidies to be paid on salaries of local health workers

Assessed valuation of county	State contribution toward salary of each worker		Maximum State contribution to one unit
	Health officer	Nurse or sanitary inspector	
\$50,000,000 or more.....	\$1,000	\$500	\$7,500
\$10,000,000 and less than \$50,000,000.....	1,500	750	6,500
\$5,000,000 and less than \$10,000,000.....	1,800	1,000	5,000
Less than \$5,000,000.....	2,000	1,000	5,000

The figures shown are purely arbitrary and would naturally have to be revised to meet actual conditions in a given State. It would be preferable to use a finer classification of counties according to valuation or, better still, to employ a continuous gradation instead of arbitrary grouping. This plan has the merit of being adapted to any type of organization, but does not effect as complete equalization of burdens as do the plans based on a specific type and size of organization.

C. SUBSIDY ON THE BASIS OF POPULATION TO BE SERVED

Plan No. 5.—Every participating county shall receive a specified sum for each inhabitant; in addition, provided that the county levies a certain tax per \$100 valuation, the State will grant the difference, if any, between the amount raised and a certain per capita budget. In concrete terms, every participating county might, on condition of levying a 5-cent tax for health work, receive a subsidy of 10 cents per capita of its population, plus an additional grant, if necessary, to make its total budget equal 50 cents per capita. Assuming a county of 10,000 population with a property valuation of \$5,000,000 a tax rate of 5 cents per \$100 would be equivalent to 25 cents per capita; the fixed subsidy would increase the per capita amount to 35 cents and equalization to the extent of 15 cents per capita would be given, making a total budget of 50 cents per capita.

A desirable modification, in order to encourage counties to exceed the minimum per capita budget, is the provision that a county levying more than the prescribed minimum tax rate shall receive equalization, if needed, up to a proportionately higher per capita budget—e. g., any county levying 6 cents per \$100 shall be given equalization up to 60 cents per capita, and so on.

Plan No. 6.—Where it is desired to offer only partial equalization, Plan No. 5 may be modified in that the equalization received shall be only one-half or some other fraction of the difference between the amount raised by a given tax levy and an amount equivalent to a predetermined per capita budget. To illustrate, Smith County and Jones County both levy a 5-cent tax for health work. The proceeds of this tax in Smith County amount to 20 cents per capita; in Jones County, to 40 cents per capita. The State in each case contributes one-half of the difference between the amount raised and an amount equivalent to 50 cents per capita. Thus Smith County will obtain a total budget of 35 cents per capita and Jones County one of 45 cents. The difference in their resources will be partially but not completely eliminated.

D. SUBSIDY ON THE BASIS OF AMOUNT OF LOCAL APPROPRIATION

Plan No. 7.—In this case the State subsidy is reckoned as a percentage of the amount appropriated by the county. The percentage to be paid by the State on the appropriation of a given county will vary inversely as the per capita assessed valuation of property. The first step is to decide what percentage of the burdens of the average county the State is prepared to assume; the second step is to provide a mechanism for assuming a relatively larger share of the cost in a poor county and, conversely, smaller share in a wealthy county. If we let R represent the percentage which the "average" county is to receive on its appropriation, then the percentage to be granted to a given county will be computed by

$$(R) \times \frac{\text{per capita wealth of average county}}{\text{per capita wealth of given county}}$$

For a numerical example, assume that a State in which the average per capita wealth, i. e., $\frac{\text{assessed valuation}}{\text{population}}$, is \$500 wishes to contrib-

ute, on the average, 50 per cent as much as is appropriated locally. What percentage shall be granted on an appropriation by county "A," which has a per capita wealth of \$250? Applying the formula given,

$$(50 \text{ per cent}) \times \frac{\$500}{\$250} = 100 \text{ per cent.}$$

Thus county "A" will receive from the State a grant of \$1 for every dollar it appropriates. County "B" has \$1,000 per capita wealth. Its rate of subsidy will be

$$(50 \text{ per cent}) \times \frac{\$500}{\$1,000}, \text{ or } 25 \text{ per cent.}$$

The plan just outlined may be modified in various ways. The suggestion has already been made that it may be desirable to make allowance for the total tax burden of a county. This may be accomplished by incorporating another factor in the formula—namely, the ratio

$$\frac{\text{Total tax rate of the given county}}{\text{Total tax rate of the average county}}$$

The percentage obtained by the preceding formula is multiplied by this second factor. Let us assume the same situation as in the numerical example given above, with the additional facts that the total tax rate of the average county is \$1.50, while that of county "A" is \$3 and that of county "B" is \$1. County "A" will receive

$$(100 \text{ per cent}) \times \frac{\$3.00}{\$1.50}, \text{ or } 200 \text{ per cent}$$

of its appropriation, while county "B" will receive

$$(25 \text{ per cent}) \times \frac{\$1.00}{\$1.50}, \text{ or } 16\frac{2}{3} \text{ per cent}$$

of what it appropriates.

This plan also can be modified by granting a fixed percentage on every county's appropriation in addition to the variable rate. The effect of this is to assure the wealthiest counties of an appreciable subsidy. This modification will be found desirable in a State whose counties differ widely in wealth. By raising or lowering the fixed rate of subsidy in comparison with the average variable rate, almost any desired degree of equalization can be effected. This plan, it should be stated, will not produce absolutely complete equalization of the per capita budgets of wealthy and poor localities, but will approach this as closely as is likely to be found desirable in practice.

SUMMARY

Financial aid from extra-county sources is an integral part of county health department administration. Such subsidy should serve both as a promoting and stabilizing influence and at the same time afford a means whereby extra-county governmental agencies may assist in providing a more uniformly adequate local service by distributing the burden in accordance with the resources of the local units of government. Such aid may be a specified amount based on a standard type of organization, or the amount may vary with the size of organization and resources of the area. Another method is to fix subsidy on the size of population served irrespective of the type of organization, and this in turn may be scaled up or down, depending upon the resources of the area served. It would seem

that a greater degree of flexibility and, to a certain extent, the desirable features of both methods would be obtained by fixing the subsidy as a certain percentage of the amount appropriated by the local area. This amount might also be influenced by the resources of the area, which, in most cases, would be the taxable wealth. Experimentation with plans of apportionment beyond the rudimentary ones now in operation seems indicated in order to accomplish the purposes of financial aid.

SPECIAL SESSION OF THE PERMANENT COMMITTEE OF THE INTERNATIONAL OFFICE OF PUBLIC HYGIENE, MAY, 1929¹

The Permanent Committee of the International Office of Public Hygiene held its special 1929 session at Paris from May 13 to 22, 1929.

Those present were Messrs. Velghe (Belgium), president; Hamel (Germany); Bandelac de Pariente (Spain); Rupert Blue (United States of America); Barrère (France); Duchêne (French West Africa); Boyé (French Indo-China); l'Herminier (Madagascar); G. S. Buchanan (Great Britain); Phipson (British India); C. L. Park (Australia); F. X. Le Noblet du Plessis (Canada); P. G. Stock (Union of South Africa); A. Lutrario (Italy); M. Tsurumi (Japan); de la Torre (Mexico); F. Roussel (Monaco); H. M. Gram (Norway); N. M. Josephus Jitta (Netherlands); W. de Vogel (Dutch East Indies); Djavad Asthiany (Persia); W. Chodzko (Poland); Ricardo Jorge (Portugal); Cantacuzène (Rumania); Yoannovitch (Kingdom of Serbs, Croats, and Slovenes); C. Kling (Sweden); H. Carrière (Switzerland); L. Prochazka (Czechoslovakia); de Navailles (Tunis); Syssine (Union of Socialist Soviet Republics); and M. Abt, director of the International Office of Public Hygiene.

The following were also present at the meetings of the committee: Dr. Hubert Work, former Secretary of the Interior of the United States of America, former president of the American Medical Association; Surg. Gen. Hugh S. Cumming, United States Public Health Service; Doctor Valintine, director general of the New Zealand Health Service; Doctor Rajchman, medical director of the health section of the League of Nations; Doctor Ouchi, of the National Japanese Institute of Infectious Diseases.

¹ Translation.

I

The committee discussed a number of important questions pertaining to the application of the International Sanitary Convention of 1926.

1. First it had under consideration the difficulties which the International Office of Public Hygiene has met on all sides arising from the enforcement of article 28 of this convention—periodic deratization of ships and the issuance of certificates of deratization or of exemption.

With a view of assuring (under the conditions provided by the convention, and so as not to harm any of the legitimate interests in question, from the standpoint of public health as well as from that of international maritime traffic) effective intervention by the Office, the following was considered for the present the most appropriate method: (a) Direct exchange of views among delegates of the interested countries, power being given to the delegates from the countries where the reported difficulties have arisen to make all arrangements, or to take the necessary steps with competent powers to put an end to such difficulties; (b) immediate communication to the Office of acts and circumstances which might justify an examination at the next session of the committee; (c) the Office to remain at the disposition of any government wishing to have its advice on any principle or action bearing on article 28 of the convention.

One of the difficulties raised at the present time, on which the committee had deliberated at its session of October, 1928, originates in the fact that certain countries recognize as valid only certificates having been visaced by their respective consuls, and, in the absence of this visa, force ships to deratization in their ports. The committee has been able only to maintain the position which it took at first on this question—that is to say, that neither the terms of the convention of 1926 nor the deliberations of the Conférence of Paris from which it arose seem to justify the exigency in question.

Another point which has also been regulated in the above-mentioned conditions is that of the arrangements existing in certain countries, not foreseeing the fact that ships may be exempt from deratization on the presentation of a valid certificate or on inspection showing that they are in the condition required for exemption. The committee insisted on the motives which inspired the writers of article 28 and which are not to require ships to undergo systematic deratizations but to use that measure only in case of real necessity and, by granting a sort of privilege to ships kept free from rats, little by little and more and more to bring about rat proofing.

It has been specified that, according to the terms of the convention, every certificate should be considered valid, whether of derati-

zation or exemption, issued, with the required delay, by responsible authorities of a port reported to the Office as qualified for that purpose,² except, naturally, the exceptional cases in which the sanitary authority would have serious reason to fear that the rodent population on the ship had attained dangerous proportions.

As to the possibility of giving a certificate of exemption to a ship with full holds, after inspection, this might, strictly speaking, be permitted, but only in absolutely exceptional cases, because of the nature of the cargo or its special stowing.

Finally, the examination of the question as to whether a new ship ought, before being placed in service, undergo an inspection according to the terms of article 28 of the convention, under certain circumstances be deratized, and, in any case, be provided with a certificate, or whether it ought to be considered exempt from this obligation during the first six months of service, has been referred to the next session of the committee.

As to the form of the certificate itself, a suggestion was made to reconsider the decision taken by the committee at the time of the establishment of the model by the Office,³ and to provide two separate forms for deratization and for exemption, the colors being different. Note was made of this suggestion in case that others, similar or bearing on other points of the model, might also be made elsewhere. For the moment the general opinion was to keep to the single form decided on after serious deliberation by the committee, especially because several countries have already officially adopted it.

The question of the requirement of certificates of deratization or of exemption from warships, or from auxiliary ships attached in time of peace to the war fleet and flying the flag, was brought before the committee, which deemed that such certificates might validly be issued to these ships at naval bases which are sufficiently equipped for that purpose. It is sufficient that the countries to which such ships belong add the ports in question to the list of ports qualified to issue such certificates and report this addition to the Office, specifying that it concerns only the deratization or exemption of warships or similar vessels.

2. The International Office of Public Hygiene addressed to the signatory governments of the convention of 1926 a circular asking whether they would be willing to conform to the views of the French Government, to lower in large measure, and even entirely suppress in case of reciprocity, the consular fees for visaing bills of health, and which would be prepared to simplify the whole system of bills

² A preliminary list of ports thus reported by the governments according to the terms of the International Sanitary Convention (art. 28) was published and distributed by the International Office of Public Hygiene to the sanitary administrations of the different countries. This publication was followed by two supplements. The establishment of a second complete list is planned.

³ See Bulletin of the International Office of Public Hygiene, v. XX, 1928, p. 295.

of health, according to the recommendations of article 49 of the convention, if others would follow the same course. The result of the replies already received is that: (1) No bill of health, and consequently no visa, is required in Sweden, Norway, Denmark, Germany, the Netherlands, Great Britain (United Kingdom), and New Zealand. Italy accepts suppression for certain countries, on the grounds of reciprocity. (2) The consular visa is not required by Italy, in principle, according to the terms of articles 51 and 52 of the sanitary maritime regulations. Suppression would be accepted by the Union of South Africa. Greece requires the consular visa only at the last foreign port of call, by virtue of reciprocity; besides, the complete suppression of any visa might be granted to ships from countries having themselves abolished the visa for Greek ships. (3) The consular visa is at present free in the Netherlands, in Italy (art. 50 of the sanitary maritime regulations), and in Japan. (4) The United States of America, through the United States Public Health Service, is ready to support any project for the diminution of charges pertaining to visas. Togo, French equatorial Africa, the French settlements of Oceania, and the Kamerun are also favorable to a reduction of these fees. In Mexico the tariffs are now already low (2 pesos, about 25 francs, per bill of health).

Belgium, the principality of Monaco, Persia, the Kingdom of the Serbs, Croats, and Slovenes, and the Dominican Republic have agreed to adopt the views of the French Government.

The committee has not considered it opportune to reopen at present a discussion of bills of health, which has already been considered by the Office at length. Among the replies received, some demanded the maintenance of the system of the bill of health, which is considered a necessary document, especially in the countries where there exists serious menace from epidemic diseases and where the transmission of information concerning these diseases presents certain difficulties—for example, in the colonies of the West Coast of Africa, and also in Mexico and Tunis. The realization of the whole group of recommendations of article 49 of the convention ought, nevertheless, not be lost sight of.

At the present time the first of these recommendations—free issuance of bills of health (by the sanitary authority)—has passed to the state of a ruling in France, in Great Britain, and other countries. The application of the second—reduction of fees pertaining to the consular visa—seems, we have just seen, in a favorable position in several countries, besides those which have already entirely abolished the requirement of the visa or the bill of health itself. The Office should continue its action in this direction.

3. The first International Sanitary Maritime Annual, established by the International Office of Public Hygiene in order to give cur-

rency to the diverse regulations of the convention relative to the sanitary organization of ports, has been approved by the committee, which decided that copies of it be sent to the administrations of different countries, not only for immediate use, but also with a view of further obtaining from them or, through their intervention, from all other interested authorities, complementary information considered useful. At the end of the current year a new edition will be published and placed in circulation.

4. Based on the replies received by the Office on the subject of the use of the radio in quarantine operations, of which a résumé was published in the Bulletin,⁴ the committee did not believe it was actually possible as yet to declare the establishment of regulations according to which special privileges would obligatorily be conceded to ships having made a sanitary declaration by wireless. But it was agreed that in all countries it is of practical advantage for ships, to send such declarations, which facilitate the task of the port sanitary authorities, and consequently permit them to curtail formalities and measures on arrival.

Already, in most ports, the radio is in use for reporting at least the existence of diseases on board to the sanitary authorities, directly or through the intermediary of shipping agents. To facilitate this use, if not to regulate it, the recommendation of a form of message containing the essential information for all the sanitary administrations ought to be followed up. With the view of perfecting the form, the different suggestions received will be examined, and one or two forms—the second form to apply to ships without a doctor—may doubtless be adopted at the next meeting of the committee.

The Office received a memorandum notice prepared by the British administration, with regard to the incorporation in the international code of signals, of which a new edition is in preparation, of a medical section intended for radiomedical consultations at sea. This section should contain words and phrases in code—comprehensible, therefore, in all languages which may be used on ships without a doctor. The committee decided affirmatively the question as to whether such an incorporation would be desirable. It decided to support the proposal that the Commission on the International Signal Code make use of the British plan, which appears to the commission to be a good one considered as a whole, although it does not consider itself called upon to comment on the chapters in detail. However, the committee discussed those chapters which have a bearing on quarantine operations, and proposed several additions, so as to provide in advance all possible information which might finally appear useful to the Office in including in such a form of message what it desires to recommend.

⁴ See Bulletin of the International Office of Public Hygiene, v. XXI, 1929, p. 704.

5. With regard to the report ⁵ which was presented to it by Doctor Lutrario, delegate from Italy, the committee recognized the importance of the improvements which could be made in the status of ships' surgeons, as much from the standpoint of securing adequate medical care for passengers of all classes as from that of insuring the complete execution of measures of sanitary control and prophylaxis on board.

It was decided that in order to intensify propaganda in this direction a sufficient number of copies of the report should be sent to the governments of the member countries of the Office, calling their attention to the opportunity to communicate to competent administrations as well as to navigation companies, to associations of shipowners, and to those of ships' doctors; and to instigate, if possible, conferences between these different interested parties. The following points have seemed especially worthy of holding the attention: (1) The professional education of ships' doctors (special courses, issuance of an official diploma, repeating courses); (2) the powers to be given doctors with the view of safeguarding the public health on board; (3) the degree of responsibility of the doctor in medical and hygienic matters and the appropriate methods of permitting him to assume that responsibility.

6. Following the publication in the Bulletin ⁶ of a questionnaire on screens or buckler rat guards, some communications have been received, from which it is concluded (a) that the apparatus, whatever it is, used as rat guards on the moorings will never displace the application of other really important measures; (b) that, among these measures, the principal and, in any case, the most generally practicable measure consists in the raising, or else the lighting and surveillance, of the gangplanks; (c) that the rat guards, even if they are not considered as having absolute efficacy, constitute a precaution offering a relative guarantee which no one would want to renounce entirely; (d) that it might be of interest to limit their use to dangerous ships, or those considered suspect for some reason or other; and, finally, (e) that in any case the practice is of no use unless the rat guards are of a sufficient diameter and are carefully placed and maintained in a suitable position on all the cables, chains, and lines, mooring the ship to land. Promising experiments in this direction have been made in British India; they will be more fully discussed and the question of whether a uniform model should be recommended will be examined at the next session of the committee.

7. The committee gave special consideration to the documents received by the Office regarding the sanitary control of air navigation.

⁵ This report, with its supplements containing the replies from different countries to a questionnaire which had been sent to them for that purpose, will be published in a supplement to one of the early numbers of the Bulletin of the International Office of Public Hygiene.

⁶ See Bulletin of the International Office of Public Hygiene, v. XX, 1928, p. 1817.

It is of the opinion that, under present conditions, the danger presented by air communication from a sanitary point of view is relatively small. However, it concerns a field in which progress may be so rapid that it would be unwise not to foresee the appearance of circumstances requiring immediate measures; furthermore, it is vitally important to determine to what extent the interests of sanitary defense might assume, circumstances necessitating the control of traffic the essential characteristic of which is speed.

For these reasons the committee has decided that the Office should not only continue to assemble the greatest amount of information possible on the subject, but in the next session should attempt to evolve from this information the essential arrangements which, through special agreement or general regulation, the different countries might consider with regard to air navigation.

It indicated, from the very beginning, that, in its opinion, it would be little justified by actual conditions to attempt simply to combine, from the point of view of applicable sanitary measures, commercial aviation with maritime navigation or with railroad transportation. It is a question of entirely special conditions, as much as regards the travelers or the objects transported as the trips themselves and the arrivals. One might, however, predict *a priori* as compatible with conditions, the designation of landing ports, the medical inspection on arrival, the surveillance (in the sense of the International Sanitary Convention) of persons coming from regions attacked by a pestilential disease, and eventually the maintenance in strict quarantine during the call.

8. The first report of the Commission on Pilgrimage, established in the Committee of the International Office of Public Hygiene in October, 1928, for the purpose of inquiring into questions bearing on the sanitary control of the Mussulman pilgrimage to Hedjaz, decided, among other matters, to recommend the holding of a local conference at Beirut to consider the difficulties arising, from a sanitary point of view, from the transportation of the pilgrims in the region of the Near East. In accordance with the earnest desire of the French Government to carry out this proposal, the conference was held in January, 1929. Its resolutions were submitted, in May, to the commission, whose second report was approved by the committee. The observations which, from a technical point of view, one or the other of the said resolutions might call up, were communicated by request to the French Government.

On the other hand, on a particular point, that of the passports issued to pilgrims in their different countries of origin and containing, in general, mention of sanitary regulations, the question was raised as to whether it would not be opportune to make these documents uniform. The conference of Beirut had left this question provisionally

in abeyance. After having examined the passports in use in the interested countries, the committee did not consider their unification actually necessary; but, in a special report bringing to the notice of the governments of the said countries the points which this examination seemed particularly to bring to light, it tried to furnish them with indications, eventually useful either for the preparation of a passport for their dependent pilgrims, in case they shall not have already regulated this matter, or for the improvement of the passports already in force in their territory.

9. Among the other points relating to the International Sanitary Convention, it is appropriate to mention the activity of the International Office of Public Hygiene regarding notifications and communications under the terms of articles 1 and following. The correspondence service has functioned normally; a circular, accompanied by a special notice has, according to the former decision of the committee, been addressed to the interested sanitary administrations, as well as to the regional bureaus, assuring for the Office the same service, with the view of ascertaining certain peculiarities of this functioning.

The committee has taken note of the communication from the department of the prime minister of the Commonwealth of Australia, concerning the action on the resolutions of the international conference of Melbourne in 1926, especially on the subject of the Bureau of Epidemiological Information of the Australian Government at Melbourne.

II

The committee approved the annual report of the Health Organization of the League of Nations for 1928. Besides it received information of the resolutions adopted in the fourteenth session of the Health Committee of the League of Nations, held at Geneva from May 2 to 8, 1929.

Different questions had been deferred to it for an opinion by the League of Nations, according to the terms of articles 8 to 10 of the Opium Convention of Geneva of 1925. They concerned, on the one hand, the conditions under which, in conformity with previous opinions, the acyclic derivatives of morphine and the preparations eucodal, dicodide, and dilaudide should fall under the application of this convention, and, on the other hand, the possibility of exempting from this application certain products contained in the lists transmitted by the governments. The committee examined the technical report of the expert pharmacologists whom it had, as before in a similar case, previously charged with the study of the questions. Having approved the conclusions of the report, except on one point, concern-

ing which the delegate from a government requested a further consideration, it sent them to the Health Committee of the League of Nations. In addition, other questions of the same order were submitted again by this committee to the International Office of Public Hygiene, which sent them to its Opium Commission for examination.

III

Certain things occurring during the last 10 years are such as to bring about a general revision of the ideas on smallpox and vaccine. Different questions pertaining to this chapter of epidemiology and the prophylaxis of transmissible diseases have been discussed at each of the last meetings of the Permanent Committee of the International Office. It has seemed opportune to prolong and systematize this action, entrusting to a commission the task of preparing and of placing progressively in execution a methodical program of studies on the subject.

One of the first points is the persistence in Great Britain and the United States of an epidemic of benign smallpox of the alastrim type. This benign type seems definitely fixed. Would it be possible, and commendable, to make, in the administrative statistics and in the application of international prophylactic measures, a distinction between the smallpox called "alastrim" and classic smallpox as it prevails in different countries of the Far East and northern Africa? The defense against smallpox raises numerous questions: What are the measures taken in the different countries in regard to persons attacked by smallpox and their households? What are the regulations concerning antismallpox vaccination and how are these rules observed? How is the distribution of lymph vaccine assured? How ought the lymph be tested? Under what conditions of preservation and dilution ought it be employed? Why does it happen sometimes that very severe vaccinal reactions are observed? What process of vaccination ought to be recommended? What is the duration of the vaccinal and variolic immunity?

On the other hand, postvaccinal encephalitis does not disappear from countries where it has made its appearance. In the Netherlands three new cases appeared in April, 1929, two in the same village. The average frequency for the last few years is 1 case per 5,000 vaccinations, a proportion established after a critical examination of all the cases registered. The publicity of the restrictions imposed by the fear of this complication is beginning to be manifest by a great diminution in the number of vaccinations, which is actually falling to one-third of what it was during the period 1924-1927. However, reserves of vaccine are ready to be utilized in case of an epidemic. In Great Britain, from October, 1927, to

the end of 1928, there were reported 65 cases with nervous symptoms following vaccination, with 32 deaths; the observations were submitted for study to the Rolleston Commission, which decided, for each case, whether or not it was encephalitis. On the other hand, in France an official inquiry of the Ministry of Labor and Hygiene found only, besides a few examples of meningitic reactions, two suspected cases of encephalitis. In Italy there was none officially reported in 1928. In Rumania, where there is much vaccination, the disease is still unknown. In the Union of Socialist Soviet Republics, among the eight to nine million vaccinations actually made, no case seems to have occurred. In Germany, the public health department collected, in 1928, eight possible cases (but not all confirmed) in 2,000,000 vaccinations. In Sweden there has been collected for the period 1924-1928, 20 cases of nervous complications, 5 fatal, but which were not all encephalitis; the frequency of the latter was about 2.5 to 5.2 per 100,000 vaccinations. The age most frequently attacked is 3 to 4 years in Sweden, and school age in Great Britain. However, there has been reported in the Netherlands, in children of less than 1 year, 5 cases, and 2 doubtful cases (no deaths), and in Great Britain 4 cases.

Finally, on the subject of antismallpox vaccination, reports have been made to the committee on the organization in Morocco of mass vaccination of the natives, which is welcomed on the part of the inhabitants; and on the remarkable results obtained by the use of dried vaccine, inoculated by the puncture method in French West Africa, and in general in the French possessions of Africa.

An epidemic of plague (about 500 known cases), which occurred in the interior of Mongolia from July to the end of October, 1928, was discovered on the examination of a case toward the beginning of September at Chien Chia Tien by the sanitary service of the South Manchurian Railroad. The possibility of the conservation of the plague virus in Manchuria by a burrowing squirrel is for the first time considered.

A rather active outbreak of plague occurred during March and April, 1929, in South Morocco, about 80 kilometers southeast of Agadir; plague-infected rats were found in the port and in the foci of the interior. Energetic measures—vaccination and suspension of traffic in merchandise likely to carry rats—seemed quickly to have controlled the epidemic.

Antiplague vaccination seems to have protected the town of Dakar and its outlying districts in 1928. In the parts of Senegal attacked more than 116,000 vaccinations (lipovaccine, one injection) were performed. In a total of 1,950 cases of plague 165 were among those vaccinated, 63 of these in the first 15 days following vaccination. At Aden, in 1928, the occurrence of plague was one-sixth as frequent

among those vaccinated as among those not vaccinated, and the mortality among them fell from 80 per 100 to 30 per 100.

An epizootic of plague was observed in April, 1929, at Hamburg on a ship coming from Rosario. In the Union of South Africa (district of Aar and regions situated to the west and northwest) a disease, mistaken in the beginning for plague, which was caused by a *pasteurella* organism, killed a great number of Lobengula and Namaqua gerbilles. The bacteria which was isolated could be used in the destruction of these rodents.

Cholera occurred in Indo-China with much less intensity in 1928 than in 1927—6,170 cases as compared with 31,940; Tonkin and Laos remained almost free; Cochin China and Cambodia were attacked the most. The number of anticholera vaccinations exceeded 8,000,000 in two years. They have doubtless contributed to limiting the epidemic, but their efficacy is more manifest in the regions where vaccination has been more nearly complete than in those where it has been less so. The study of the epidemiology of cholera in Indo-China during these two years emphasized the rôle of moisture in the etiology of the disease at Tonkin and Annam, where the recrudescences coincide with the periods of drought, during which the subterranean water is reduced and very much contaminated; in Cochin China, on the contrary, it is a question of direct contagion.

An extensive experiment in vaccination against tuberculosis by the B. C. G. is being carried on in Rumania. More than 21,000 vaccinations of the newborn have been performed, and follow-up has been made in about 17,400 children. The general infant mortality fell, in the sections vaccinated, from 26.9 to 9.7 per 100. As to tuberculosis, in tuberculous environments it caused only a mortality of 1.4 per 100 (2.3 counting the suspected cases) instead of 25 per 100, the usual rate in Rumania. The principal difficulty encountered in the establishment of this last figure lies in the diagnosis of tuberculosis in dead infants. The hygienic conditions of those vaccinated are very poor in the sections where the experiment was conducted. The cutaneous reaction to tuberculin became positive after vaccination in 16 per 100 of the subjects. Favorable results were obtained with vaccination by the B. C. G. at Amsterdam.

As to the data which the International Office of Public Hygiene is gathering on infant mortality from tuberculosis in tuberculous environments, they show a remarkable difference between the countries with a low mortality and those with a high mortality. Thus, in Great Britain, in Lancashire, the mortality of children of from 0 to 1 year, living in contact with tuberculous persons expectorating bacilli, is only 1.7 per 100; in contact with tuberculous persons whose sputum does not contain bacilli, it falls to 0.7 per 100; and for children born of tuberculous mothers and not separated from the mother, it does

not exceed 3.27 per 100. There is no notable difference between the rate of mortality from 0 to 1 year, and that from 1 to 2 years and from 2 to 5 years. In Norway, at Oslo, the mortality of children of tuberculous mothers, not separated, is also actually 3.2 per 100. In Belgium, on the contrary, for the same class of children it is about 25.5 per 100, the same as in Rumania. In France the investigation of 1928 gives rates of 11.5 and 12 per 100, while that of 1925, made under similar conditions, gave 24 per 100; the difference seems to be the result of the action of dispensaries. Finally, in Amsterdam, the figures reported seem as high as in France; the relatively small number of children included in the investigation, however, does not permit considering the results as final.

The study made in Amsterdam has, above all, brought to light the gravity of the infections acquired during the first three months of life. At Oslo, where the actual mortality rate of tuberculosis among infants born of tuberculous mothers and not separated is a quarter of what it was 15 years ago, this remarkable progress is attributed above all, in addition to the compulsory declaration of cases of tuberculosis and the isolation of the patients when the sanitary authority considers isolation useful, to the supervision of tuberculous foci by medical specialists and visiting nurses, and to the improvement of living quarters.

The very interesting reports made, on the occasion of an investigation instituted by the League of Red Cross Societies, on the organization of the antituberculosis control in the industrial center of Milan, have suggested to the committee of the Office the idea of gathering material on the antituberculosis work in the industrial centers of different countries, in view of bringing to light the importance of the assistance which industry can bring into the domain of administrative or private action.

New researches on the cutaneous reaction produced by the lepromine of Bargehr have been carried on in Java. They have confirmed the fact that a positive reaction corresponds to a certain allergic state which exists among persons immunized by prolonged contact with lepers or among lepers whose disease has become stationary. Repeated applications of lepromine provoke this condition in certain subjects, which might be considered as refractory to leprosy. The method permits the making of early diagnosis of leprosy in families or leprous foci (negative reaction) or judging whether the evolution of the disease is arrested in former lepers (positive reaction).

A slight epidemic of dengue, appearing in 1928 on a boat arriving at Lisbon from Dakar, brought to attention the fact that the region of Dakar might be the point of departure for a spread of that disease; it had not been reported there since 1926. Certain cases in this small, perfectly homogeneous epidemic lasted only three days, while

presenting a cutaneous eruption; the fact is in opposition to the rule observed in Greece during the great epidemics of 1927 and 1928, according to which any affection which does not last longer than three days is not dengue.

In Cochin China, an epidemic of dengue which appeared in 1927 and 1928 was distinguished by certain characteristics of Mediterranean dengue; it did not coincide with a notable abundance of mosquitoes, particularly *Stegomyia*; and the few persons attacked in 1928 had for the most part already been attacked in 1927.

The possibility of a recrudescence of dengue in the Mediterranean Basin during the summer of 1929, or the following summers, has aroused the committee of the Office to prepare, at the present time, a plan of special arrangements between the countries interested, on the subject of measures of international defense to be taken against this disease. The plan was communicated to the governments of these countries.

The investigation of cases of undulant fever caused by the bacillus of contagious abortion of cattle was conducted, in which the data on 57 cases were collected in Germany; the occurrence was associated with farmers and farm workers, butchers and veterinarians. In Poland, 3 cases were recognized; the infection was contracted during the delivery of cattle (2 veterinarians). In Sweden, for 18 months the average was 2 cases per week—a figure lower than that given the last summer for Denmark (1 per day). The existence of contagious abortion in the regions situated between the foci of undulant fever seems to indicate that, in these last, there are strains of Bang bacillus adapted to man. A new case of laboratory infection by the Bang bacillus was reported in the Netherlands, at Groningue. In France three cases only, originating in contagious abortion of cows, are actually known; systematic research by laboratories, however, has not yet been made. The disease, which is frequent in Provence and Languedoc, is caused by the germ of abortion of goats and sheep. It is especially the sheep which have the infection. The infected zone tends to border on the departments near the boundaries. Infection through milk occurs frequently only in the towns; in the country the principal source is infected dunghills, and, in certain cases, contaminated water. In Sweden, epidemic abortion of cattle has also appeared, as found in a special investigation (district of Rimbo, Province of Upland), to attack the farms situated near rivers or lakes (78.8 per 100 farms infected), while the greater part of farms free from the disease (85.5 per 100) were far from bodies of water. Up to the present time the frequency of undulant fever caused by the Bang bacillus has not seemed such as to cause the sanitary administrations to consider it necessary to require general pasteurization of milk.

An epidemic of cerebrospinal meningitis with persistent recurrences at Belgrade has been definitely terminated after detection and elimination of carriers of germs. These last were very numerous—41.46 per 100 in a collection of 485 persons—but only about 10 were continued carriers. On the occasion of analogous epidemics in the Dutch East Indies (depot of armed police at Java, boats transporting workers from Java to Sumatra), the increasing of the distance between the men in the sleeping quarters has been an efficacious method. Cerebrospinal meningitis seems to have been rather frequent, recently, in the East and Far East, even on board ship—a situation which merits the attention of the sanitary authorities.

On the subject of the influence of the treatment of syphilis by salvarsan on the frequency of general paralysis, the opinions expressed remain divergent. In Germany, for the majority of authors, in Poland (statistics of Polish asylums), and in Tunis general paralysis has not increased in frequency. In the Dutch East Indies it might have been the result of insufficient treatment. In the United States it seems to strike rather often individuals who received an early arsenical treatment during the war; but there are no statistics indicating an increase in frequency. A Russian and German mission, which recently examined 4,000 persons in the region of Lake Baikal, has shown that among the inhabitants which have undergone no medical treatment, general paralysis and tabes are not rare. In Tunis, the nervous and encephalitic forms of syphilis are encountered in the Israelite population, but are very rare among the Mussulmans, so often attacked by syphilis.

The treatment of general paralysis by the inoculation of malaria has given results in the United States analogous to those obtained in Europe; remissions, in proportions of from 39 to 61 per cent of treated persons, vary according to the forms of insanity. In tabes, amaurosis has been halted in 13 cases out of 18.

The United States, the Netherlands, Norway, Denmark, Australia, Germany, Canada, and France have sent information on the number of hospital beds existing and the territorial distribution of hospitals in their territories. Other replies are still awaited before a study of the question can be presented to the committee. It appears above all, at the present time, that the distribution of the hospitals, created, in general, by local initiative and without a general viewpoint, is very unequal in all countries. In certain regions the needs of the population are insufficiently served; in others the resources are uselessly wasted. The rural districts have, in general, few hospitals. In Great Britain, a more rational distribution of hospitals and personnel is now under study; it will be based on a judicious collaboration of former hospital institutions, which are often privately managed, with the sanitary authorities of the

municipalities and counties, charged by a new law with organizing all the hospitalization in their region.

Contributions were made by the United States and by France to the studies under way on the mortality in cities compared with that in the country. In the United States the rural mortality presents about the same rates in the States of the North as in those of the South; it is even slightly lower in the latter. On the contrary, the cities of the South have a mortality well above those of the North; the difference seems to be attributed to a less extensive development of health service. During the course of the last 18 years, typhoid fever and enteritis in infants under 2 years have decreased much more in the urban districts than in the rural districts. There is a movement in favor of the creation of county health service; 414 counties out of 2,500 are already provided with local health service. In France the rural mortality is below that of the cities; but it has decreased during 25 years only 13.3 per cent, while urban mortality decreased 14.3 per cent. The comparative study of some causes of death shows that, although the difference in the total mortality is only 5.3 per cent, the mortality of the cities exceeds that of the country by nearly 100 per cent and sometimes more for certain items, viz, typhoid fever, diphtheria, tuberculosis, affections of the respiratory apparatus other than pneumonia, and chronic bronchitis.

But it is possible that certain factors render illusory the comparison of total mortality rates—for example, different birth rates and different proportions of age groups more or less affected by mortality. A more profound study of some urban and rural districts properly selected, in particular from the point of view of the definition of the term "rural population," would be more instructive than the examination of the existing statistics, and would lead, perhaps, to the goal which is to give appropriate orientation to the sanitary organization of which the country has need. This study will be undertaken with the collaboration offered the International Office of Public Hygiene by the International Institute of Agriculture.

Poland is actively engaged, with the assistance of the Rockefeller Foundation, in the creation of health centers, scattered over the country, in urban and rural districts; these centers already number 140. They are at once dispensaries and centers of preventive medicine, which comprise, according to the local possibilities, more or less the following sections: Infant hygiene, tuberculosis, venereal diseases, trachoma, malaria, antialcoholism, school hygiene, dental care, and prophylaxis of contagious diseases. In addition, some have baths, public laundries, a preventorium, and a playground; they organize theatrical and cinema reproductions and popular fêtes. The resources are furnished by the communes, the administrations of

the districts, and the funds of sickness insurance, with subventions from the State.

Reports have also been made to the committee of the Office on the establishment of hospitals for narcotic addicts (especially heroin) in the United States; on the tuberculin index in French equatorial Africa and in Madagascar; on the frequency of tuberculosis in tuberculous families in Madras; on antituberculosis vaccination with B. C. G. in Madagascar; on the organization of a quarantine service in the ports of Japan; on the sanitary control of tours to the Dutch East Indies; on the medical assistance to thinly scattered populations in northern Russia and Siberia; and on a model of trap tunnel for rats which could be placed on a long extension in warehouses filled with merchandise.

DEATHS DURING WEEK ENDED DECEMBER 21, 1929

Summary of information received by telegraph from industrial insurance companies for the week ended December 21, 1929, and corresponding week of 1928. (From the Weekly Health Index, December 27, 1929, issued by the Bureau of the Census, Department of Commerce)

	Week ended Dec 21, 1929	Corresponding week, 1928
Policies in force	75,191,352	72,917,294
Number of death claims.....	14,578	14,536
Death claims per 1,000 policies in force, annual rate.....	10.1	10.4

Deaths from all causes in certain large cities of the United States during the week ended December 21, 1929, infant mortality, annual death rate, and comparison with corresponding week of 1928. (From the Weekly Health Index, December 27, 1929, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Dec. 21, 1929		Annual death rate per 1,000, corresponding week, 1928	Deaths under 1 year		Infant mortality rate, week ended Dec 21, 1929 ²
	Total deaths	Death rate ¹		Week ended Dec 21, 1929	Corresponding week, 1928	
Total (65 cities).....	7,603	13.3	16.2	683	825	³ 60
Akron.....	41			6	12	62
Albany ⁴	45	19.5	17.4	3	2	50
Atlanta.....	82	16.8	24.6	10	13	104
White.....	43			4	8	
Colored.....	39	(9)	(9)	6	5	
Baltimore ⁴	257	16.2	15.9	17	23	55
White.....	201			11	10	44
Colored.....	56	(9)	(9)	6	13	95
Birmingham.....	64	15.0	15.8	3	11	27
White.....	35			3	4	45
Colored.....	29	(9)	(9)	0	7	0
Boston.....	211	13.8	12.0	27	17	75
Bridgeport.....	35			6	4	104
Buffalo.....	150	15.0	14.7	13	9	66
Cambridge.....	19	7.9	10.8	2	3	36
Camden.....	35	13.5	13.9	4	9	69
Canton.....	13	5.8	17.9	1	4	24
Chicago ⁴	754	12.5	18.4	69	100	62
Cincinnati.....	156			11	17	64

(See footnotes at end of table)

Deaths from all causes in certain large cities of the United States during the week ended December 21, 1929, infant mortality, annual death rate, and comparison with corresponding week of 1928. (From the Weekly Health Index, December 27, 1929, issued by the Bureau of the Census, Department of Commerce)—Continued

City	Week ended Dec. 21, 1929		Annual death rate per 1,000, corresponding week, 1928	Deaths under 1 year		Infant mortality rate, week ended Dec. 21, 1929 ¹
	Total deaths	Death rate ¹		Week ended Dec. 21, 1929	Corresponding week, 1928	
Cleveland	170	8.8	11.7	22	17	65
Columbus	95	16.6	14.2	7	7	66
Dallas	65	15.6	16.1	9	8	
White	58			7	6	
Colored	7	(⁹)	(⁹)	2	2	
Dayton	35	9.9	17.0	4	6	63
Denver	78	13.9	30.0	9	12	87
Des Moines	30	10.3	22.7	5	4	90
Detroit	322	12.2	14.1	32	55	51
Duluth	26	11.6	16.1	1	0	24
El Paso	23	10.2	25.3	1	13	
Erie	20			2	3	41
Fall River	37	14.4	9.0	4	4	75
Flint	19	6.7	9.5	3	6	4
Fort Worth	30	9.2	10.4	1	2	36
White	24			1	2	
Colored	6	(⁹)	(⁹)	0	1	
Grand Rapids	25	8.0	19.1	0	8	0
Houston	92			5	10	
White	68			2	9	
Colored	24	(⁹)	(⁹)	3	1	
Indianapolis	112	15.3	21.1	8	12	64
White	86			6	10	56
Colored	26	(⁹)	(⁹)	2	2	119
Jersey City	78	12.6	13.0	8	14	62
Kansas City, Kans.	24	10.6	21.2	1	4	22
White	18			1	4	25
Colored	6	(⁹)	(⁹)	0	0	0
Kansas City, Mo.	107	14.3	27.5	9	19	76
Knoxville	19	9.4	21.3	1	6	22
White	12			1	5	24
Colored	7	(⁹)	(⁹)	0	1	0
Los Angeles	308			25	21	73
Louisville	105	10.7	13.8	9	2	73
White	78			9	2	84
Colored	27	(⁹)	(⁹)	0	0	0
Lowell	30			3	5	68
Lynn	20	9.9	10.9	1	3	27
Memphis	64	17.6	20.3	10	9	118
White	42			5	4	95
Colored	22	(⁹)	(⁹)	5	5	156
Milwaukee	120	11.5	14.5	24	16	105
Minneapolis	110	12.6	16.9	4	11	25
Nashville	54	20.2	21.3	5	7	81
White	33			2	6	43
Colored	21	(⁹)	(⁹)	3	1	189
New Bedford	21			3	3	64
New Haven	31	8.6	14.7	2	2	31
New Orleans	161	19.6	26.3	16	19	79
White	97			9	14	63
Colored	64	(⁹)	(⁹)	7	5	118
New York	1,603	13.9	13.9	142	125	58
Bronx Borough	219	12.0	11.8	18	19	53
Brooklyn Borough	520	11.8	11.7	47	39	48
Manhattan Borough	621	18.5	19.3	60	50	73
Queens Borough	190	11.6	9.9	14	14	57
Richmond Borough	53	18.4	19.1	3	3	54
Newark, N. J.	131	14.5	11.0	9	11	47
Oakland	72	13.7	14.7	4	5	44
Oklahoma City	31			5	1	100
Omaha	55	12.9	17.0	1	4	12
Paterson	37	13.4	14.4	2	4	35
Philadelphia	511	12.9	17.6	46	57	65
Pittsburgh	166	12.0	28.4	14	24	48
Portland, Oreg.	59			5	4	57
Providence	72	13.1	15.9	7	8	62
Richmond	60	16.1	13.2	5	7	70
White	37			3	4	64
Colored	23	(⁹)	(⁹)	2	3	82
Rochester	80	12.7	12.4	3	9	25
St. Louis	222	13.7	16.2	15	27	15

(See footnotes at end of table)

Deaths from all causes in certain large cities of the United States during the week ended December 21, 1929, infant mortality, annual death rate, and comparison with corresponding week of 1928. (From the Weekly Health Index, December 27, 1929, issued by the Bureau of the Census, Department of Commerce)—Continued

City	Week ended Dec 21, 1929		Annual death rate per 1,000, corresponding week, 1928	Deaths under 1 year		Infant mortality rate, week ended Dec 21, 1929 ¹
	Total deaths	Death rate ¹		Week ended Dec 21, 1929	Corresponding week, 1928	
St. Paul.....	54	—	—	4	6	41
Salt Lake City ⁴	29	11.0	19.7	5	2	77
San Antonio.....	87	20.9	17.5	15	8	—
San Diego.....	40	—	—	3	3	57
San Francisco.....	186	14.8	17.6	10	6	64
Schenectady.....	26	14.6	15.1	3	1	90
Seattle.....	57	7.8	13.4	5	3	53
Somerville.....	25	12.7	10.2	3	5	108
Spokane.....	37	17.7	20.6	1	2	26
Springfield, Mass.....	40	14.0	9.4	4	1	66
Syracuse.....	52	13.6	13.1	6	4	72
Tacoma.....	16	7.6	15.6	1	1	26
Toledo.....	70	11.7	22.4	2	15	19
Trenton.....	51	19.2	15.8	5	7	91
Utica.....	35	17.6	15.1	1	1	25
Washington, D. C.....	144	13.6	13.9	6	12	35
White.....	96	—	—	3	6	25
Colored.....	48	(³)	(³)	3	6	57
Waterbury.....	13	—	—	2	2	51
Wilmington, Del.....	25	10.2	11.8	4	4	104
Worcester.....	59	15.6	12.2	6	4	75
Yonkers.....	30	12.9	10.3	6	2	140
Youngstown.....	46	13.8	15.9	7	8	101

¹ Annual rate per 1,000 population.

² Deaths under 1 year per 1,000 births. (Cities left blank are not in the registration area for births.)

³ Data for 73 cities.

⁴ Deaths for week ended Friday

⁵ In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 26; Richmond, 32, and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended December 21, 1929, and December 22, 1928

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended December 21, 1929, and December 22, 1928

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Dec. 21, 1929	Week ended Dec. 22, 1928	Week ended Dec. 21, 1929	Week ended Dec. 22, 1928	Week ended Dec. 21, 1929	Week ended Dec. 22, 1928	Week ended Dec. 21, 1929	Week ended Dec. 22, 1928
New England States:								
Maine.....	1	3	21	46	6	203	0	0
New Hampshire.....	5	3			13	27	0	0
Vermont.....	1	3		3	6	12	0	0
Massachusetts.....	126	106	9	73	89	617	1	1
Rhode Island.....	4	17		14	1	49	0	0
Connecticut.....	21	34	9	144	4	226	3	3
Middle Atlantic States								
New York.....	171	242	63	271	368	823	16	21
New Jersey.....	116	114	19	219	78	88	7	6
Pennsylvania.....	150	135			391	483	6	1
East North Central States:								
Ohio.....	43	63	18	1,872	357	170	4	3
Indiana.....	19	30		1,716	21	114	18	0
Illinois.....	223	160	24	2,408	322	311	10	10
Michigan.....	99	78	4	5,777	113	64	15	4
Wisconsin.....	21	36	32	14,724	589	162	4	3
West North Central States.								
Minnesota.....	26	31	2	1,749	131	121	1	1
Iowa.....	6	11		85,000	134		0	0
Missouri.....	36	52	13	1,196	30	51	16	4
North Dakota.....	2	6		21,346	20	5	0	3
South Dakota.....				103	14	10	1	0
Nebraska.....	26	16		1,704	140	34	1	0
Kansas.....	24	28	1	17,617	71	16	2	4
South Atlantic States:								
Delaware.....	3	1	3	10			0	0
Maryland.....	24	54	53	627	15	37	1	1
District of Columbia.....	13	14	1	187			0	0
Virginia.....				40,000				
West Virginia.....	20	21	13	2,642	221	77	1	0
North Carolina.....	73	71	39		3	26	0	2
South Carolina.....	20	26	653	9,662		29	0	0
Georgia.....	11	16	63	6,852	14	84	0	1
Florida.....	1	14	2	228	9	5	0	0

¹ New York City only

Estimated.

² Week ended Friday.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended December 21, 1929, and December 22, 1928—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Dec 21, 1929	Week ended Dec 22, 1928	Week ended Dec 21, 1929	Week ended Dec 22, 1928	Week ended Dec 21, 1929	Week ended Dec 22, 1928	Week ended Dec 21, 1929	Week ended Dec 22, 1928
East South Central States:								
Kentucky.....	4	17	10,100	189	0	0		
Tennessee.....	82	13	63	4,101	7	2	0	0
Alabama.....	29	66	117	1,518	9	212	1	1
Mississippi.....		22		2,689			1	
West South Central States								
Arkansas.....	14	23	102	1,145	4	76	7	3
Louisiana.....	41	10	25	121	16	170	9	3
Oklahoma.....	39	46	83	3,759	27	3	2	1
Texas.....	112	56	80	992	10	15	0	1
Mountain States:								
Montana.....	4	12	4,031	14	53	1	10	
Idaho.....		3		11	58	0	0	
Wyoming.....	2	1	320			0	0	
Colorado.....	7			27		6		
New Mexico.....	5	21	6	1,161	1	2	4	1
Arizona.....	15	4	29	933	4	3	9	0
Utah.....	3	1	63	25	1	3	5	
Pacific States:								
Washington.....	6	5	2	766	67	37	2	4
Oregon.....	13	11	17	1,605	11	41	1	3
California.....	78	72	42	2,708	216	18	10	14

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Dec 21, 1929	Week ended Dec 22, 1928	Week ended Dec 21, 1929	Week ended Dec 22, 1928	Week ended Dec 21, 1929	Week ended Dec 22, 1928	Week ended Dec 21, 1929	Week ended Dec 22, 1928
New England States:								
Maine.....	0	0	51	43	0	2	10	1
New Hampshire.....	0	1	21	11	0	0	0	0
Vermont.....	0	0	11	5	1	0	0	0
Massachusetts.....	1	2	255	202	0	0	5	2
Rhode Island.....	0	0	16	24	0	0	0	0
Connecticut.....	1	0	85	52	0	1	3	0
Middle Atlantic States.								
New York.....	0	5	336	386	10	0	10	11
New Jersey.....	1	0	146	115	0	0	4	5
Pennsylvania.....	1	3	418	234	2	0	19	10
East North Central States								
Ohio.....	2	0	187	183	161	14	7	2
Indiana.....	1	0	76	76	119	43	3	5
Illinois.....	0	0	491	313	115	46	14	13
Michigan.....	4	0	263	0	35	46	1	2
Wisconsin.....	0	2	102	183	40	28	9	2
West North Central States:								
Minnesota.....	1	0	126	154	11	3	3	0
Iowa.....	2	0	65	82	85	42	4	2
Missouri.....	0	1	85	55	30	20	13	1
North Dakota.....	0	2	24	12	18	3	1	0
South Dakota.....	0	0	19	10	17	7	0	0
Nebraska.....	1	0	50	41	62	26	1	1
Kansas.....	0	0	96	90	37	12	6	2
South Atlantic States.								
Delaware.....	0	0	5	5	0	0	1	0
Maryland.....	0	1	82	70	0	0	4	3
District of Columbia.....	0	0	22	20	0	0	0	2
Virginia.....	1	5	60	57	25	18	7	18
West Virginia.....	2	0	74	74	13	5	2	1
North Carolina.....	0	0	8	14	3	0	7	10
South Carolina.....	0	1	4	20	0	0	0	5
Georgia.....	1	0	17	12	5	0	1	1
Florida.....								

* Week ended Friday.

* Figures for 1929 are exclusive of Oklahoma City and Tulsa and for 1928 are exclusive of Tulsa only.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended December 21, 1929, and December 22, 1928—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Dec. 21, 1929	Week ended Dec. 22, 1928	Week ended Dec. 21, 1929	Week ended Dec. 22, 1928	Week ended Dec. 21, 1929	Week ended Dec. 22, 1928	Week ended Dec. 21, 1929	Week ended Dec. 22, 1928
East South Central States:								
Kentucky.....	0	0	23	46	5	5	7	5
Tennessee.....	0	0	17	27	7	3	0	7
Alabama.....	1	2	30	49	4	1	22	20
Mississippi.....	0	0	21	12	0	2	5	4
West South Central States:								
Arkansas.....	1	0	23	30	6	5	2	4
Louisiana.....	0	2	17	14	2	22	13	2
Oklahoma ¹	0	0	30	31	19	37	5	13
Texas.....	0	0	56	60	23	26	3	5
Mountain States:								
Montana.....	0	0	47	29	9	11	2	0
Idaho.....	0	0	16	1	14	14	0	0
Wyoming.....	0	0	6	15	7	1	0	0
Colorado.....	2		20		51		0	
New Mexico.....	0	0	6	11	1	1	0	3
Arizona.....	0	0	12	6	11	6	1	0
Utah ¹	0	0	12	17	1	6	0	0
Pacific States:								
Washington.....	1	4	63	43	59	14	1	1
Oregon.....	1	0	53	23	13	27	1	1
California.....	1	4	223	159	39	14	8	4

¹ Week ended Friday.

⁴ Figures for 1929 are exclusive of Oklahoma City and Tulsa and for 1928 are exclusive of Tulsa only.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Men- gococ- cus menin- gitis	Diph- theria	Infl- uenza	Ma- laria	Mea- sles	Pel- lagra	Polio- mye- litis	Scarlet fever	Small- pox	Ty- phoid fever
October, 1929										
Hawaii Territory...	6	42	8		9			3	0	8
November, 1929										
Georgia.....	9	110	341	352	36	37	8	211	0	23
Maryland.....	4	111	67		83		5	258	0	49
New York.....	69	728		6	730		28	1,101	118	99
North Dakota.....	3	27			64		0	96	59	6
Ohio.....	29	362	75	1	1,086		20	1,073	557	77
West Virginia.....	8	214	97		102	1	7	390	72	94

October, 1929		November, 1929	
Hawaii Territory:	Cases	Anthrax:	Cases
Chicken pox.....	15	New York.....	2
Conjunctivitis (follicular).....	266	Chicken pox:	
Hookworm disease.....	20	Georgia.....	60
Leprosy.....	4	Maryland.....	349
Mumps.....	1	New York.....	2,162
Tetanus.....	2	North Dakota.....	222
Trachoma.....	130	Ohio.....	2,870
Whooping cough.....	10	West Virginia.....	346

November, 1929—Continued

	Cases
Conjunctivitis:	
Georgia.....	1
Diarrhea:	
Maryland.....	15
Diarrhea and enteritis under 2 years:	
Ohio.....	27
Dysentery:	
Georgia.....	25
Maryland.....	2
New York.....	28
German measles:	
Maryland.....	58
New York.....	83
Ohio.....	8
Hookworm disease:	
Georgia.....	18
Impetigo contagiosa:	
Maryland.....	16
Jaundice	
Maryland.....	1
Lead poisoning	
Ohio.....	13
Lethargic encephalitis	
Maryland.....	1
New York.....	7
North Dakota.....	4
Ohio.....	1
Mumps:	
Georgia.....	17
Maryland.....	43
New York.....	867
North Dakota.....	212
Ohio.....	321
West Virginia.....	3
Ophthalmia neonatorum:	
Maryland.....	2
New York.....	8
Ohio.....	98
Paratyphoid fever:	
Georgia.....	2
New York.....	1
Ohio.....	2
West Virginia.....	1
Puerperal septicemia:	
New York.....	10
Ohio.....	4

November, 1929—Continued

	Cases
Rabies in animals.	
Maryland.....	5
New York ¹	10
Rabies in man:	
New York.....	1
Scabies:	
Maryland.....	10
North Dakota.....	22
Septic sore throat:	
Georgia.....	27
Maryland.....	7
New York.....	13
Ohio.....	66
Tetanus	
Georgia.....	1
Maryland.....	3
New York.....	4
North Dakota.....	1
Ohio.....	3
Trachoma	
New York.....	2
North Dakota.....	1
Ohio.....	7
Tularaemia:	
Georgia.....	1
Maryland.....	2
North Dakota.....	1
Ohio.....	1
Typhus fever	
Georgia.....	8
Undulant fever	
Georgia.....	2
Maryland.....	1
New York.....	11
Ohio.....	9
Vincent's angina.	
Maryland.....	15
New York ¹	83
North Dakota.....	16
Whooping cough.	
Georgia.....	99
Maryland.....	234
New York.....	1,337
North Dakota.....	33
Ohio.....	642
West Virginia.....	199

¹ Exclusive of New York City.

PLAGUE-INFECTED GROUND SQUIRRELS IN CALIFORNIA

The Director of Public Health of the State of California reports that on December 14, 1929, plague infection was proved in one squirrel from a ranch 10 miles west of Mayfield, Santa Clara County, Calif.

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 95 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 31,280,000. The estimated population of the 89 cities reporting deaths is more than 29,790,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended December 14, 1929, and December 15, 1928

	1929	1928	Estimated expectancy
<i>Cases reported</i>			
Diphtheria:			
46 States.....	2,264	2,207	
95 cities.....	812	939	1,143
Measles			
43 States.....	3,879	4,997	
95 cities.....	684	1,087	
Meningococcus meningitis:			
46 States.....	189	175	
95 cities.....	90	59	
Poliomyelitis:			
46 States.....	27	41	
Scarlet fever:			
46 States.....	4,477	4,146	
95 cities.....	1,672	1,202	1,164
Smallpox:			
46 States.....	1,339	688	
95 cities.....	136	46	38
Typhoid fever:			
46 States.....	235	236	
95 cities.....	35	29	52
<i>Deaths reported</i>			
Influenza and pneumonia:			
89 cities.....	954	1,580	
Smallpox:			
89 cities.....	0	0	

City reports for week ended December 14, 1929

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during non-epidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1920 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Population, July 1, 1928, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND									
Maine:									
Portland	78,600	26	2	0		0	0	3	5
New Hampshire:									
Concord	(1)	0	0	0		0	4	0	2
Manchester	85,700	0	3	0		1	0	0	1
Vermont:									
Barre	(1)	1	0	0		0	1	0	1
Massachusetts:									
Boston	799,200	75	44	32	3	1	16	54	26
Fall River	134,300	4	5	4	1	1	1	0	0
Springfield	149,800	40	5	0		0	1	5	3
Worcester	197,600	45	6	1	1	0	13	0	2
Rhode Island:									
Pawtucket	73,100	17	2	1		0	1	0	2
Providence	286,300	1	11	6		0	0	0	7
Connecticut:									
Bridgeport	(1)	2	7	1	1	1	0	0	2
Hartford	172,300	12	8	6		0	1	0	3
New Haven	187,900		2						
MIDDLE ATLANTIC									
New York:									
Buffalo	555,800	34	21	24		0	3	2	19
New York	6,017,500	198	209	130	24	10	24	39	182
Rochester	328,200	11	7	0		0	2	3	8
Syracuse	190,300	55	5	0		0	0	42	4
New Jersey:									
Camden	135,400	3	6	10		0	0	0	2
Newark	473,600	78	20	27	4	0	21	12	12
Trenton	139,000	1	5	0		0	7	0	6
Pennsylvania:									
Philadelphia	2,064,200	157	81	25	4	5	19	23	68
Pittsburgh	673,800	106	23	16	1	3	21	2	19
Reading	115,400	56	4	0		0	0	0	4
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	413,700	31	16	3		0	23	0	13
Cleveland	1,010,300	291	45	15	18	6	5	9	22
Columbus	299,000	13	10	2	5	4	4	6	7
Toledo	313,200	160	12	4	2	2	264	6	8
Indiana:									
Fort Wayne	105,300	5	6	3		0	0	0	2
Indianapolis	382,100	66	11	4		1	10	0	12
South Bend	86,100	1	2	0		0	0	0	3
Terre Haute	73,500	8	3	0		0	0	0	2
Illinois:									
Chicago	3,157,400	205	105	102	13	6	21	36	68
Springfield	67,200	11	2	0	1	1	0	0	3
Michigan:									
Detroit	1,378,900	109	67	63	4	1	94	48	31
Flint	148,800	42	4	4		0	1	1	2
Grand Rapids	164,200	6	4	2		0	2	0	2

¹ No estimate of population made.

City reports for week ended December 14, 1929—Continued

Division, State, and city	Population, July 1, 1928, estimated	Chick- en pox, cases re-ported	Diphtheria		Influenza		Meas- les, cases re-ported	Mumps, cases reported	Pneu- monia, deaths re-ported
			Cases, esti- mated expect- ancy	Cases re-ported	Cases re-ported	Deaths re-ported			
EAST NORTH CENTRAL— continued									
Wisconsin:									
Kenosha.....	56,500	8	1	2	—	1	1	0	2
Madison.....	50,500	13	3	0	—	0	37	1	0
Milwaukee.....	544,200	203	24	5	3	3	6	20	10
Racine.....	74,400	12	4	0	—	0	1	0	2
Superior.....	(¹)	5	0	2	—	0	40	0	0
WEST NORTH CENTRAL									
Minnesota:									
Duluth.....	110,800	8	1	0	—	0	31	0	3
Minneapolis.....	455,900	234	25	5	—	1	30	16	14
St. Paul.....	(¹)	45	16	1	—	1	3	14	5
Iowa:									
Des Moines.....	151,900	0	4	0	—	—	0	0	—
Sioux City.....	80,000	—	1	—	—	—	—	—	—
Waterloo.....	37,100	22	1	0	—	—	19	0	—
Missouri:									
Kansas City.....	391,000	38	9	5	1	2	14	0	19
St. Joseph.....	78,500	5	2	1	—	0	0	0	5
St. Louis.....	848,100	24	45	38	—	—	2	11	—
North Dakota:									
Fargo.....	(¹)	13	0	0	—	0	0	1	1
Grand Forks.....	(¹)	2	0	0	—	—	0	0	—
South Dakota:									
Aberdeen.....	(¹)	16	0	0	—	—	1	3	—
Sioux Falls.....	(¹)	0	0	0	—	—	1	0	—
Nebraska:									
Omaha.....	222,800	12	8	19	—	0	6	0	4
Kansas:									
Topeka.....	62,800	20	2	4	—	0	0	5	3
Wichita.....	99,300	18	5	4	—	0	0	0	4
SOUTH ATLANTIC									
Delaware:									
Wilmington.....	128,500	9	3	1	—	0	2	0	1
Maryland:									
Baltimore.....	830,400	92	35	14	14	3	4	3	39
Cumberland.....	(¹)	1	1	0	—	0	0	0	1
Frederick.....	(¹)	0	0	1	—	0	0	0	1
District of Columbia:									
Washington.....	552,000	28	19	14	—	0	2	0	17
Virginia:									
Lynchburg.....	38,600	11	3	2	—	0	2	6	3
Norfolk.....	184,200	0	3	2	—	0	1	12	6
Richmond.....	194,400	5	12	6	—	3	1	0	2
Roanoke.....	64,900	0	3	2	—	0	0	0	2
West Virginia:									
Charleston.....	55,200	9	1	0	—	0	0	0	2
Wheeling.....	(¹)	4	2	0	—	0	0	0	1
North Carolina:									
Raleigh.....	(¹)	1	1	1	—	0	0	0	5
Wilmington.....	39,100	1	1	3	—	0	0	0	3
Winston-Salem.....	80,000	27	2	3	10	0	1	8	3
South Carolina:									
Charleston.....	75,900	0	1	0	72	0	0	3	3
Columbia.....	50,600	1	1	0	—	1	1	0	2
Georgia:									
Atlanta.....	255,100	16	5	9	44	2	1	3	11
Brunswick.....	(¹)	0	0	0	—	0	0	0	1
Savannah.....	99,900	5	2	0	15	1	0	0	3
Florida:									
Miami.....	156,700	3	3	7	—	0	0	4	1
Tampa.....	113,400	7	2	1	—	0	1	4	1

¹ No estimate of population made.

City reports for week ended December 14, 1929—Continued

Division, State, and city	Population, July 1, 1928, estimated	Chicken pox, cases re-reported	Diphtheria		Influenza		Measles, cases re-reported	Mumps, cases reported	Pneumonia, deaths re-reported
			Cases, estimated expectancy	Cases re-reported	Cases re-reported	Deaths re-reported			
EAST SOUTH CENTRAL									
Kentucky:									
Covington.....	50,000	0	1	3		0	0	0	4
Tennessee:									
Memphis.....	190,200	6	7	6		2	0	1	8
Nashville.....	139,600	4	3	1		3	0	0	7
Alabama:									
Birmingham.....	222,400	9	6	5	17	3	1	0	7
Mobile.....	69,600	0	1	3	1	0	0	0	3
Montgomery.....	63,100	1	2	2	1		1	0	
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith.....	(1)	3	1	2			0	0	
Little Rock.....	79,200	8	0	0		0	0	2	3
Louisiana:									
New Orleans.....	429,400	2	12	13	16	13	6	0	25
Shreveport.....	81,300	0	1	3		0	1	1	4
Oklahoma:									
Oklahoma City.....	(1)	1	4	1	5	0	1	0	9
Tulsa.....	170,500	29	4	6			1	0	
Texas:									
Dallas.....	217,600	25	15	33		0	9	0	13
Fort Worth.....	170,000	10	7	9		0	0	0	5
Galveston.....	50,600	0	1	2		1	0	0	2
Houston.....	(1)	1	8	15		2	0	0	5
San Antonio.....	218,100	0	5	9		4	0	0	7
MOUNTAIN									
Montana:									
Billings.....	(1)	0	0	0		0	0	17	1
Great Falls.....	(1)	4	1	0		0	2	50	0
Helena.....	(1)	0	0	0		0	0	7	1
Missoula.....	(1)		0						
Idaho:									
Boise.....	(1)	12	0	0		0	0	0	1
Colorado:									
Denver.....	294,200	92	13	7		0	2	0	14
Pueblo.....	44,200	6	2	0		0	0	0	3
New Mexico:									
Albuquerque.....	(1)	4	1	0		0	1	3	0
Utah:									
Salt Lake City.....	138,000	53	4	0		0	7	16	2
Nevada:									
Reno.....	(1)	0	0	0		0	0	0	0
PACIFIC									
Washington:									
Seattle.....	383,200	78	6	1			2	41	
Spokane.....	109,100	45	2	2			0	0	
Tacoma.....	110,500	7	3	1		0	0	0	2
Oregon:									
Portland.....	(1)	23	11	5	1	1	1	8	4
Salem.....	(1)	0	0	0	1	0	0	0	0
California:									
Los Angeles.....	(1)	50	40	13	43	1	5	18	18
Sacramento.....	175,700	16	3	0	1	1	1	28	6
San Francisco.....	585,300	74	20	7	9	4	184	21	8

1 No estimate of population made.

City reports for week ended December 14, 1929—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- cul- osis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
NEW ENGLAND											
Maine:											
Portland	2	10	0	13	0	0	0	0	0	0	25
New Hampshire											
Concord	0	0	0	0	0	0	0	0	0	0	8
Manchester	2	0	0	0	0	0	0	0	0	0	17
Vermont											
Barre	0	0	0	1	0	1	0	0	0	2	2
Massachusetts											
Boston	55	13	0	0	0	12	1	2	0	55	213
Fall River	3	5	0	0	0	1	0	0	0	1	33
Springfield	8	8	0	0	0	2	0	0	0	22	39
Worcester	11	12	0	0	0	1	0	0	0	17	32
Rhode Island											
Pawtucket	1	4	0	0	0	1	0	0	0	2	16
Providence	8	9	0	0	0	3	0	1	0	3	86
Connecticut											
Bridgeport	9	7	0	0	0	1	0	0	0	1	23
Hartford	6	12	0	0	0	0	0	0	0	0	30
New Haven	6		0				1				
MIDDLE ATLANTIC											
New York											
Buffalo	25	32	0	0	0	7	1	0	0	22	170
New York	176	141	1	0	0	98	13	10	1	41	1,561
Rochester	9	6	0	0	0	3	1	0	0	2	76
Syracuse	11	21	0	0	0	2	0	0	0	21	45
New Jersey											
Camden	6	4	0	0	0	1	0	1	2	0	47
Newark	18	18	0	0	0	12	1	0	0	18	126
Trenton	3	14	0	0	0	4	0	0	0	1	44
Pennsylvania											
Philadelphia	76	91	0	0	0	27	3	1	0	32	513
Pittsburgh	37	28	0	0	0	9	1	1	1	9	198
Reading	3	2	0	0	0	1	0	0	0	18	23
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	15	25	0	0	0	6	1	0	0	2	143
Cleveland	35	46	0	1	0	17	1	1	0	62	236
Columbus	11	23	1	5	0	3	0	0	0	8	85
Toledo	14	8	0	1	0	5	1	0	0	4	84
Indiana:											
Fort Wayne	4	1	1	19	0	0	0	0	0	1	33
Indianapolis	12	12	5	2	0	6	0	1	0	4	110
South Bend	3	1	0	0	0	0	0	0	0	0	13
Terre Haute	3	4	1	0	0	0	0	0	0	0	24
Illinois:											
Chicago	113	368	1	7	0	39	4	1	1	118	746
Springfield	2	1	0	0	0	0	0	0	0	7	21
Michigan											
Detroit	90	134	1	0	0	31	2	0	0	43	317
Flint	12	20	0	10	0	1	0	0	0	2	20
Grand Rapids	10	10	0	0	0	1	0	0	0	7	20
Wisconsin:											
Kenosha	1	3	0	0	0	1	0	0	0	2	7
Madison	2	4	0	0	0	0	0	0	0	11	
Milwaukee	24	29	0	0	0	6	0	1	0	44	129
Racine	5	7	0	0	0	0	0	0	0	11	14
Superior	2	3	0	1	0	0	0	0	0	0	11

¹ Delinquents.

City reports for week ended December 14, 1929—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
WEST NORTH CENTRAL											
Minnesota:											
Duluth.....	10	6	0	1	0	0	0	0	0	2	24
Minneapolis.....	50	20	3	0	0	3	0	0	0	9	93
St. Paul.....	25	16	4	0	0	2	1	0	0	4	58
Iowa:											
Des Moines.....	9	10	0	5			0	0		0	19
Sioux City.....	3		0				0				
Waterloo.....	1	3	0	16			0	0		8	
Missouri:											
Kansas City.....	15	47	1	0	0	5	0	2	0	5	111
St. Joseph.....	3	2	0	2	0	3	0	1	0	0	25
St. Louis.....	35	25	0	6	0	18	2	0	0	6	247
North Dakota											
Fargo.....	2	0	0	0	0	0	0	0	0	1	7
Grand Forks.....	0	1	0	4			0	0		0	
South Dakota:											
Aberdeen.....	1	0	1	0			0	0		1	
Sioux Falls.....	1	1	0	19			0	2		0	10
Nebraska:											
Omaha.....	6	2	2	4	0	1	1	0	0	0	52
Kansas:											
Topeka.....	2	7	1	0	0	0	0	0	0	3	11
Wichita.....	4	13	0	0	0	1	0	0	0	2	30
SOUTH ATLANTIC											
Delaware:											
Wilmington.....	5	2	0	0	0	0	0	0	0	0	24
Maryland:											
Baltimore.....	24	36	0	0	0	20	3	1	0	15	256
Cumberland.....	1	0	0	0	0	0	0	0	0	0	10
Frederick.....	1	3	0	0	0	0	0	0	0	4	4
District of Col.:											
Washington.....	21	17	0	0	0	9	1	1	0	2	157
Virginia:											
Lynchburg.....	1	1	0	0	0	0	0	0	0	39	14
Norfolk.....	3	5	0	0	0	4	0	0	0	4	
Richmond.....	6	15	0	0	0	5	0	0	0	1	56
Roanoke.....	3	1	0	0	0	1	0	0	0	0	17
West Virginia:											
Charleston.....	2	2	0	0	0	1	0	0	0	2	12
Wheeling.....	2	2	0	0	0	1	1	0	0	1	22
North Carolina:											
Raleigh.....	1	1	0	0	0	0	0	0	0	11	16
Wilmington.....	1	1	1	0	0	0	0	0	0	0	19
Winston-Salem.....	3	4	0	0	0	3	0	0	0	2	18
South Carolina:											
Charleston.....	0	2	0	0	0	2	0	1	1	1	30
Columbia.....	0	3	0	0	0	1	0	0	0	4	15
Georgia:											
Atlanta.....	5	11	0	0	0	4	1	0	0	2	78
Brunswick.....	0	0	0	0	0	0	0	0	0	0	8
Savannah.....	0	0	0	0	0	4	1	0	0	1	43
Florida:											
Miami.....	2	1	0	0	0	3	0	0	0	2	27
Tampa.....	1	2	0	0	0	2	0	1	0	0	22
EAST SOUTH CENTRAL											
Kentucky:											
Covington.....	2	0	0	0	0	0	0	0	0	0	23
Tennessee:											
Memphis.....	7	4	0	0	0	4	1	1	0	0	59
Nashville.....	3	0	0	0	0	0	0	1	0	2	62
Alabama:											
Birmingham.....	4	6	0	0	0	4	1	0	0	1	67
Mobile.....	0	1	1	0	0	1	0	0	0	0	25
Montgomery.....	0	2	0	0			0	0		0	

City reports for week ended December 14, 1929—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith.....	1	2	0	0	-----	-----	0	0	-----	0	-----
Little Rock.....	2	1	0	0	0	0	1	0	0	0	-----
Louisiana:											
New Orleans.....	8	12	0	0	0	5	2	1	0	1	177
Shreveport.....	3	0	0	0	0	0	1	0	0	0	25
Oklahoma:											
Oklahoma City.....	3	13	0	4	0	3	0	3	1	1	49
Tulsa.....	2	10	0	3	-----	-----	0	0	-----	0	-----
Texas:											
Dallas.....	7	10	0	0	0	4	0	1	0	0	72
Fort Worth.....	2	6	1	2	0	2	0	0	0	0	29
Galveston.....	0	1	0	0	0	0	0	0	0	0	14
Houston.....	2	4	0	7	0	1	0	0	1	0	04
San Antonio.....	2	6	0	2	0	11	0	0	0	0	85
MOUNTAIN											
Montana:											
Billings.....	1	0	1	0	0	0	0	0	0	0	7
Great Falls.....	2	17	1	0	0	1	0	0	0	0	6
Helena.....	0	0	0	0	0	0	0	0	0	0	5
Missoula.....	0	-----	0	-----	-----	-----	0	-----	-----	-----	-----
Idaho:											
Boise.....	1	0	0	0	0	0	0	0	0	0	8
Colorado:											
Denver.....	12	13	1	2	0	10	1	0	0	10	88
Pueblo.....	2	0	0	0	0	0	0	0	0	1	10
New Mexico:											
Albuquerque.....	1	1	0	0	0	3	0	0	0	0	8
Utah:											
Salt Lake City.....	3	4	2	1	0	5	1	1	0	7	33
Nevada:											
Reno.....	0	0	0	0	0	0	0	0	0	0	6
PACIFIC											
Washington:											
Seattle.....	7	15	2	2	0	-----	1	0	-----	8	-----
Spokane.....	8	2	3	26	0	-----	0	1	-----	5	-----
Tacoma.....	4	5	2	14	0	0	0	1	0	7	24
Oregon:											
Portland.....	7	5	7	5	0	2	0	0	0	5	70
Salem.....	0	0	1	0	0	0	0	0	0	0	-----
California:											
Los Angeles.....	28	64	2	1	0	30	2	0	0	16	323
Sacramento.....	2	12	1	2	0	2	0	1	0	1	50
San Francisco.....	15	43	0	4	0	11	1	0	0	6	144

City reports for week ended December 14, 1929—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Massachusetts:									
Boston.....	1	0	0	0	0	0	1	0	0
Springfield.....	1	0	0	0	0	0	0	0	0
Worcester.....	0	0	0	0	0	0	0	1	0
Connecticut:									
Bridgeport.....	2	0	0	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
New York.....	9	3	7	4	0	0	2	2	0
Rochester.....	1	0	0	0	0	0	0	1	0
New Jersey:									
Newark.....	2	0	0	0	0	0	0	1	0
Pennsylvania:									
Philadelphia.....	6	2	0	1	0	0	0	0	0
Pittsburgh.....	0	1	0	0	0	0	0	0	1
EAST NORTH CENTRAL									
Ohio:									
Cincinnati.....	1	0	0	0	0	0	0	0	0
Cleveland.....	6	4	0	0	0	0	0	0	0
Columbus.....	1	0	0	0	0	0	0	0	0
Toledo.....	1	3	0	0	0	0	0	1	0
Indiana:									
Indianapolis.....	8	4	0	0	0	0	0	0	0
Illinois:									
Chicago.....	7	2	0	0	0	0	0	0	0
Michigan:									
Detroit.....	11	3	0	0	0	0	0	3	1
Flint.....	1	0	0	0	0	0	0	0	0
Wisconsin:									
Milwaukee.....	0	3	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Iowa:									
Des Moines.....	0	0	0	0	0	0	0	1	0
Missouri:									
Kansas City.....	1	0	0	0	0	0	0	0	0
St. Joseph.....	3	0	0	0	0	0	0	0	0
St. Louis.....	5	2	0	0	0	0	0	0	0
North Dakota:									
Fargo.....	1	0	0	0	0	0	0	0	0
Nebraska:									
Omaha.....	2	0	0	0	0	0	0	0	0
SOUTH ATLANTIC									
Maryland:									
Baltimore.....	1	2	0	0	0	0	0	0	0
District of Columbia:									
Washington.....	2	2	1	1	0	0	0	0	0
Virginia:									
Lynchburg.....	0	0	0	0	0	1	0	0	0
Norfolk.....	0	0	0	0	0	0	0	1	0
North Carolina:									
Raleigh.....	0	0	0	0	5	0	0	0	0
Wilmington.....	0	0	0	0	0	1	0	0	0
Winston-Salem.....	0	0	0	0	0	0	0	1	0
South Carolina:									
Charleston.....	0	0	0	0	6	0	0	0	0
Columbia.....	0	0	0	0	0	1	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis.....	1	0	0	0	0	0	0	0	0
Nashville.....	1	1	0	0	0	0	0	0	0
Alabama:									
Mobile.....	0	0	0	0	0	1	0	0	0

City reports for week ended December 14, 1929—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
WEST SOUTH CENTRAL									
Arkansas									
Little Rock.....	0	1	0	0	0	0	0	0	0
Louisiana ¹									
New Orleans.....	1	0	0	0	0	1	0	0	0
Shreveport.....	1	0	0	0	0	0	0	0	0
Oklahoma									
Oklahoma City.....	0	0	0	3	0	0	0	0	0
Texas ¹									
Dallas.....	0	0	0	0	3	1	0	0	0
Fort Worth.....	0	0	0	0	0	1	0	0	0
Galveston.....	0	0	0	0	0	1	0	0	0
MOUNTAIN									
Colorado									
Denver.....	1	0	0	1	0	0	0	0	0
Utah ¹									
Salt Lake City.....	3	0	0	0	0	0	0	0	0
PACIFIC									
Washington									
Seattle.....	1	0	0	0	0	0	0	2	0
Spokane.....	1	0	0	0	0	0	0	0	0
Oregon									
Salem.....	0	0	1	0	0	0	0	0	0
California ¹									
Los Angeles.....	3	1	0	0	1	1	0	0	1
Sacramento.....	2	2	0	0	0	0	0	0	0
San Francisco.....	3	0	0	0	0	0	0	0	0

¹Typhus fever; 1 case at Dallas, Tex.

The following table gives the rates per 100,000 population for 98 cities for the 5-week period ended December 14, 1929, compared with those for a like period ended December 15, 1928. The population figures used in computing the rates are approximate estimates, authoritative figures for many of the cities not being available. The 98 cities reporting cases have an estimated aggregate population of more than 31,000,000. The 91 cities reporting deaths have nearly 30,000,000 estimated population. The number of cities included in each group and the estimated aggregate populations are shown in a separate table below.

Summary of weekly reports from cities, November 10 to December 14, 1929—Annual rates per 100,000 population, compared with rates for the corresponding period of 1928¹

DIPHTHERIA CASE RATES

	Week ended—									
	Nov 16, 1929	Nov 17, 1929	Nov. 23, 1929	Nov. 24, 1928	Nov. 30, 1929	Dec 1, 1928	Dec. 7, 1929	Dec. 8, 1928	Dec. 14, 1929	Dec. 15, 1928
98 cities	170	161	² 186	165	140	152	³ 148	166	⁴ 135	159
New England.....	170	159	118	140	179	195	113	209	⁵ 126	215
Middle Atlantic.....	112	135	123	137	123	131	110	159	112	139
East North Central.....	205	175	301	182	166	185	191	160	170	204
West North Central.....	15	198	169	186	113	184	⁶ 122	149	⁷ 157	149
South Atlantic.....	122	222	135	230	144	128	⁸ 118	143	107	130
East South Central.....	231	125	238	147	156	175	224	140	136	98
West South Central.....	443	243	462	272	260	223	376	259	304	251
Mountain.....	44	239	⁹ 89	124	17	53	¹⁰ 136	35	¹⁰ 62	18
Pacific.....	87	97	62	105	57	72	¹¹ 111	100	60	61

(See footnotes at end of table)

Summary of weekly reports from cities, November 10 to December 14, 1929—Annual rates per 100,000 population, compared with rates for the corresponding period of 1928 ¹—Continued

MEASLES CASE RATES

	Week ended—									
	Nov. 16, 1929	Nov. 17, 1929	Nov. 23, 1929	Nov. 24, 1928	Nov. 30, 1929	Dec. 1, 1928	Dec. 7, 1929	Dec. 8, 1928	Dec. 14, 1929	Dec. 15, 1928
98 cities.....	56	95	² 72	110	74	116	³ 99	148	⁴ 114	183
New England.....	45	382	57	582	70	605	81	738	⁵ 94	837
Middle Atlantic.....	25	69	34	59	33	46	54	46	47	91
East North Central.....	91	86	91	105	101	132	93	187	133	194
West North Central.....	50	73	81	102	100	66	⁶ 218	194	⁷ 208	272
South Atlantic.....	7	60	24	67	22	69	⁸ 4	55	28	88
East South Central.....	14	0	14	7	0	0	14	14	14	0
West South Central.....	20	12	23	4	40	16	47	41	63	12
Mountain.....	253	204	² 107	239	131	230	⁹ 57	186	¹⁰ 98	257
Pacific.....	147	51	289	15	257	72	¹¹ 505	43	479	64

SCARLET FEVER CASE RATES

98 cities.....	206	168	² 219	176	213	173	¹ 253	261	⁴ 279	203
New England.....	267	193	251	212	260	186	278	237	⁵ 395	251
Middle Atlantic.....	135	108	127	109	116	102	148	142	172	143
East North Central.....	310	245	347	227	360	237	409	259	438	290
West North Central.....	138	225	223	284	183	221	⁶ 229	204	⁷ 279	252
South Atlantic.....	238	109	163	147	139	145	⁸ 145	176	193	163
East South Central.....	156	224	156	274	136	161	143	259	88	168
West South Central.....	158	199	162	146	123	186	162	219	142	174
Mountain.....	226	97	² 297	106	348	115	⁹ 421	80	¹⁰ 302	62
Pacific.....	185	143	269	194	274	261	¹¹ 416	197	352	182

SMALLPOX CASE RATES

98 cities.....	14	4	² 24	7	14	6	³ 17	4	⁴ 23	8
New England.....	25	0	0	0	0	5	0	2	⁵ 2	0
Middle Atlantic.....	0	0	0	0	0	0	0	0	0	0
East North Central.....	22	4	33	21	13	12	26	10	29	16
West North Central.....	42	2	50	2	48	8	⁶ 64	2	⁷ 57	0
South Atlantic.....	0	2	2	0	0	6	⁸ 0	0	0	7
East South Central.....	0	7	0	14	0	0	0	28	0	7
West South Central.....	4	0	40	8	12	12	20	4	36	24
Mountain.....	9	89	² 71	0	35	35	⁹ 102	0	¹⁰ 27	44
Pacific.....	32	3	115	18	77	8	¹¹ 36	8	122	20

TYPHOID FEVER CASE RATES

98 cities.....	8	10	² 13	10	5	6	³ 5	8	⁴ 6	5
New England.....	23	16	11	7	2	5	2	5	⁵ 7	7
Middle Atlantic.....	3	10	10	9	2	7	4	7	6	4
East North Central.....	6	6	9	5	5	5	4	7	3	1
West North Central.....	4	14	12	16	6	8	⁶ 2	4	⁷ 6	4
South Atlantic.....	9	11	19	11	4	10	⁸ 6	8	7	6
East South Central.....	14	14	34	35	34	0	48	14	14	21
West South Central.....	8	20	36	12	16	16	0	49	8	16
Mountain.....	44	18	² 36	9	26	9	⁹ 34	0	¹⁰ 9	9
Pacific.....	10	5	5	13	2	3	¹¹ 0	5	7	8

(See footnotes at end of table)

Summary of weekly reports from cities, November 10 to December 14, 1929—Annual rates per 100,000 population, compared with rates for the corresponding period of 1928 ¹—Continued

INFLUENZA DEATH RATES

	Week ended—									
	Nov. 16, 1929	Nov. 17, 1928	Nov. 23, 1929	Nov. 24, 1928	Nov. 30, 1929	Dec. 1, 1928	Dec. 7, 1929	Dec. 8, 1928	Dec. 14, 1929	Dec. 15, 1928
91 cities.....	9	15	¹ 8	17	11	34	¹² 16	50	¹³ 16	80
New England.....	9	9	5	9	5	9	11	9	⁴ 7	9
Middle Atlantic.....	4	9	9	15	5	10	14	17	9	27
East North Central.....	9	10	6	3	10	14	9	18	15	44
West North Central.....	3	9	6	0	21	18	⁶ 27	64	12	174
South Atlantic.....	11	13	4	13	17	31	² 25	64	19	101
East South Central.....	22	23	30	31	15	31	59	84	59	100
West South Central.....	32	33	16	33	57	54	49	54	81	96
Mountain.....	26	53	² 9	44	17	310	⁹ 11	514	¹⁰ 0	736
Pacific.....	10	64	7	94	13	239	13	293	20	317

PNEUMONIA DEATH RATES

91 cities.....	99	105	² 103	126	107	139	¹² 137	161	¹³ 151	262
New England.....	88	67	88	106	93	85	75	50	³ 131	108
Middle Atlantic.....	103	125	108	128	101	142	139	149	156	190
East North Central.....	71	62	96	106	83	120	126	135	115	171
West North Central.....	120	110	102	104	126	150	⁶ 125	190	174	318
South Atlantic.....	107	132	94	165	129	145	⁸ 132	170	191	261
East South Central.....	230	161	252	169	222	184	237	303	215	199
West South Central.....	126	71	134	129	162	141	248	179	239	183
Mountain.....	157	115	² 107	159	157	186	⁹ 159	337	¹⁰ 196	629
Pacific.....	80	98	59	169	108	239	144	293	111	222

¹ The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1929 and 1928, respectively.

² Reno, Nev., not included.

³ Fargo, N. Dak., Atlanta, Ga., Salt Lake City, Utah, and Seattle and Spokane, Wash., not included.

⁴ New Haven, Conn., Sioux City, Iowa, and Missoula, Mont., not included.

⁵ New Haven, Conn., not included.

⁶ Fargo, N. Dak., not included.

⁷ Sioux City, Iowa, not included.

⁸ Atlanta, Ga., not included.

⁹ Salt Lake City, Utah, not included.

¹⁰ Missoula, Mont., not included.

¹¹ Seattle and Spokane, Wash., not included.

¹² Fargo, N. Dak., Atlanta, Ga., and Salt Lake City, Utah, not included.

¹³ New Haven, Conn., and Missoula, Mont., not included.

Number of cities included in summary of weekly reports and aggregate population of cities of each group, approximated as of July 1, 1929 and 1928, respectively

Groups of cities	Number of cities reporting cases	Number of cities reporting deaths	Aggregate population of cities reporting cases		Aggregate population of cities reporting deaths	
			1929	1928	1929	1928
Total.....	98	91	31,568,400	31,052,700	29,995,100	29,498,000
New England.....	12	12	2,305,100	2,273,900	2,305,100	2,273,900
Middle Atlantic.....	10	10	10,809,700	10,702,200	10,809,700	10,702,200
East North Central.....	16	16	8,181,900	8,001,300	8,181,900	8,001,300
West North Central.....	12	9	2,712,100	2,673,300	1,736,900	1,708,100
South Atlantic.....	19	19	2,783,200	2,732,900	2,783,200	2,732,900
East South Central.....	6	5	767,900	745,500	704,200	682,400
West South Central.....	8	7	1,319,100	1,289,900	1,285,000	1,256,400
Mountain.....	9	9	598,800	590,200	598,800	590,200
Pacific.....	6	4	2,090,600	2,043,500	1,590,300	1,551,200

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Week ended December 7, 1929.—The Department of Pensions and National Health reports cases of certain communicable diseases in Canada for the week ended December 7, 1929 as follows:

Provinces	Cerebro-spinal fever	Poliomyelitis	Influenza	Smallpox	Typhoid fever
Prince Edward Island ¹					
Nova Scotia ¹					
New Brunswick				1	1
Quebec					7
Ontario	2	2	3	10	1
Manitoba					1
Saskatchewan	1			7	2
Alberta		1		11	3
British Columbia		1		6	1
Total	3	4	3	35	16

¹ No case of any disease included in the table was reported for the week.

Quebec Province—Communicable diseases—Week ended December 14, 1929.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended December 14, 1929, as follows:

Disease	Cases	Disease	Cases
Chicken pox	126	Poliomyelitis	1
Diphtheria	57	Scarlet fever	85
German measles	3	Tuberculosis	47
Influenza	3	Typhoid fever	8
Measles	124	Whooping cough	134
Mumps	57		

JAMAICA

Communicable diseases—Four weeks ended December 7, 1929.—During the four weeks ended December 7, 1929, cases of certain communicable diseases were reported in Kingston, Jamaica, and in the Island of Jamaica outside of Kingston, as follows:

Disease	Kingston	Other localities	Disease	Kingston	Other localities
Cerebrospinal meningitis		2	Poliomyelitis		1
Chicken pox		2	Puerperal fever		2
Diphtheria		1	Scarlet fever		1
Dysentery	4	0	Tuberculosis	35	61
Leprosy		2	Typhoid fever	34	89

NETHERLANDS

Smallpox (alastrim)—*Week ended November 30, 1929.*—During the week ended November 30, 1929, 4 cases of smallpox (alastrim) were reported at The Hague, Netherlands.

VIRGIN ISLANDS

Communicable diseases—November, 1929.—During the month of November, 1929, cases of certain communicable diseases were reported in the Virgin Islands, as follows:

St. Thomas and St. John:		St. Thomas and St. John—Continued.	
Chaneroid.....	3	Tetanus	1
Gonorrhea.....	7	St. Croix:	
Pellagra.....	1	Leprosy.....	1
Syphilis.....	4		

From medical officers of the Public Health Service, American consuls, International Office of Public Hygiene, Pan American Sanitary Bureau, health section of the League of Nations, and other sources. The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

CHOLERA

[**C** indicates cases; **D**, deaths; **P**, present]

Place	June 2- 29, 1929	June 30- July 27, 1929	July 28- Aug. 24, 1929	Aug. Sept. 21, 1929	October, 1929						November, 1929				Dec. 7, 1929
					Sept. 28, 1929	October, 1929					November, 1929				
						5	12	19	26	2	9	16	23	30	
Ceylon: Colombo.....	1														
China:	1														
Amoy.....	4	7	1												
Canton.....	10	6	5	1										1	1
Hankow.....	5	5	3	1											
Manchuria:															
Kwantung-Dairen.....			1												
Newchwang.....				P						P	P				
Nanking.....		2	1,309	984	3	30	2								
Shanghai.....		3	98	69	9	2									
Swatow.....	P														
Tientsin.....	4	7	12	37	8	6	8		6	3	3	1			
Chosen: Chemulpo.....				P											
India:	29,449	32,081	41,090	28,896	3,251	3,372	3,478								
Basseln.....	19,910	19,343	24,005	16,667	3,092	2,144	2,090								
Bombay.....	2	2	6	2	1										
Calcutta.....	2		1												
Karachi.....	354	275	170	183	21	30	28	81	71	32	74	53	85	55	
Madras.....	176	157	108	59	12	12	15	31	41	11	48	29	45	29	
Moulmein.....			10	11											
Negapatam.....		1							1	1	1				
Rangoon.....		1	1	1				1				1			
Tuticorin.....		1	1	1	1			1							
Vizagapatam.....	34	6	1	1	1			6	10	2	1	1	1	7	9
	30	2	1	1	1			5	5	1	1			4	1

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

CHOLERA--Continued

[C indicates cases; D, deaths; P, present]

[illegible]

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE

[C indicates cases; D, deaths; P, present]

[illegible]

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE—Continued

[C indicates cases; D, deaths; P, present]

[illegible]

Place	June, 1929	July, 1929	August, 1929	September, 1929	October, 1929	No. rem-ber, 1929
British East Africa (see also table above):						
Kenya.....	69	67	19	28	64	
Uganda.....	1,215	1,203				
Ecuador: Guayaquil.....	532	973	6	7	12	
Plague-infected rats.....		1	1	3	4	
Greece (see also table above).....	1	3	4	8	5	
Indo-China (see also table above).....		3	2	5	2	
Madagascar (see also table above):						
Ambohitra Province.....		37	0	1	2	
Antsirabe Province.....		19	48	195		
Majunga Province.....		18	46	182		
Moramanga Province.....			9	9	9	
Antsirabe Province.....		2	1	13		
Majunga Province.....		2	2	2		
Moramanga Province.....		1	2	5		
Madagascar—Continued.						
Tananaive Province.....						
Tananarive Province.....						
Peru.....						
Senegal.....						
Baol.....						
Dakar.....						
Louga.....						
Rufisque.....						
Thies.....						
Tivaouane.....						

¹ Incomplete reports.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place	Week ended—															
	June 1929		July 28, 1929	Aug. 25, 1929	Sept. 22, 1929	October, 1929				November, 1929				December, 1929		
	June 2-29, 1929	June 30-29, 1929	July 28-29, 1929	Aug. 25-26, 1929	Sept. 22, 1929	5	12	19	26	2	9	16	23	30	7	14
Great Britain:																
England and Wales:																
Aston under Lyne.....	789	541	502	496	108	97	131	154	131	168	172	172	279	198		
Bradford.....	4	3	3	8	2	1	1	2		4	8	1	7	1		
Bristol.....																
Cardiff.....																
Cardist.....	3	1	1		1							1				
Leeds.....																
London.....	187	107	78	144	46	26	39	45	29	44	47	54	84	60		
London and Great Towns.....	496	363	297	304	81	60	87	104	83	115	121	123	214	146		
Newcastle-on-Tyne.....	1	4	4	2	1	2	2		3	1	5		1			
Stoke-on-Trent.....	20	15	18	18	3	2	2									
West Ham.....	62	32	18	18	3	2	2									
Greece (see table below):																
Hedjaz.....	83	53	11	22		2	2	1	1	4	1	2				
Honduras.....	53	35	19	7			1			4	1	1				
India:																
Chotauea.....																
India.....	11,549	1,838	5,481	4,199	915	649	767	1	1							
Bombay.....	3,006	2,062	1,418	954	155	138	158									
..... tta.....	99	147	92	63	7	5	4	4	6	1	3	2	9	8		
	27	16	31	24	2	4	4	5	1	3	2	2	7	5		
	24	11	20	16	1	4	2	4	1	2			6	6		
													1	5		
													29	47		
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CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

YELLOW FEVER

C indicates cases; D, deaths; F, present]

Place	June 2-29, 1929	June 30- July 27, 1929	July 28- Aug. 24, 1929	Aug. 25- Sept. 21, 1929	Week ended—												
					Sept. 22- 28, 1929	October, 1929				November, 1929				December, 1929			
						5	12	19	26	2	9	16	23			30	7	14
Brazil:																	
Bahia.....		1	1														
Niteroy.....				1													
Para.....		1	1														
Rio de Janeiro.....	1	7	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0
Colombia:	5	1															
Elmacota.....		4															
Socorro.....		12															
Veria, Manrovia.....	4	4		1													
.....	3	1															

From June 19 to July 8, 1929, 41 cases of yellow fever with 23 deaths were reported in Socorro, Colombia.

UNITED STATES TREASURY DEPARTMENT

PUBLIC HEALTH REPORTS

ISSUED WEEKLY

**BY THE UNITED STATES
PUBLIC HEALTH SERVICE**

VOLUME 45 :: NUMBER 2

JANUARY 10 - - - 1930

===== SPECIAL ARTICLES =====

**Summary of Notifiable Diseases in States, 1928
The Smallpox (Alastrim) Epidemic in Holland
Studies in Natural Illumination in Schoolrooms**



**UNITED STATES
GOVERNMENT PRINTING OFFICE
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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. R. C. WILLIAMS, *Chief of Division*

The PUBLIC HEALTH REPORTS are issued weekly by the United States Public Health Service through its Division of Sanitary Reports and Statistics, pursuant to acts of Congress approved February 15, 1893, and August 14, 1912.

They contain: (1) Current information of the prevalence and geographic distribution of preventable diseases in the United States in so far as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other communicable diseases throughout the world. (2) Articles relating to the cause, prevention, or control of disease. (3) Other pertinent information regarding sanitation and the conservation of public health.

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PUBLIC HEALTH REPORTS

VOL. 45

JANUARY 10, 1930

NO. 2

SUMMARY OF NOTIFIABLE DISEASES IN STATES DURING 1928

The accompanying summary of the reported prevalence of communicable diseases in States during 1928 is taken from Supplement No. 79, which will soon be issued by the Public Health Service. The rates have been computed from data furnished by the health officers of the several States, the District of Columbia, and the insular possessions. The following list of diseases is included in the supplement:

Anthrax in man.

Chicken pox.

Cholera.

Dengue.

Diphtheria.

Gonorrhea.

Influenza.

Lethargic encephalitis.

Malaria.

Measles.

Meningococcus meningitis.

Mumps.

Pellagra.

Plague (human).

Pneumonia (all forms).

Poliomyelitis.

Rabies in animals.

Rabies in man.

Rocky Mountain spotted fever.

Scarlet fever.

Septic sore throat.

Smallpox.

Syphilis.

Tuberculosis (all forms and respiratory system).

Tularaemia.

Typhoid fever.

Typhus fever.

Undulant fever.

Whooping cough.

Yellow fever.

The following table shows the States (including the District of Columbia and insular possessions) for which morbidity and mortality data were received for the calendar year 1928:

Morbidity	Mortality	Morbidity	Mortality
Alabama.....	Alabama.....	New Hampshire.....	New Hampshire.....
Arizona.....	Arizona.....	New Jersey.....	New Jersey.....
Arkansas.....	Arkansas.....	New Mexico.....	
California.....	California.....	New York.....	New York.....
Colorado ¹	Colorado.....	North Carolina.....	North Carolina.....
Connecticut.....	Connecticut.....	North Dakota.....	North Dakota.....
Delaware.....	Delaware.....	Ohio.....	Ohio.....
District of Columbia.....	District of Columbia.....	Oklahoma.....	Oklahoma.....
Florida.....	Florida.....	Oregon.....	Oregon.....
Georgia.....	Georgia.....	Pennsylvania.....	Pennsylvania.....
Idaho.....	Idaho.....	Rhode Island.....	Rhode Island.....
Illinois.....	Illinois.....	South Carolina.....	South Carolina.....
Indiana.....	Indiana.....	South Dakota.....	South Dakota.....
Iowa.....	Iowa.....	Tennessee.....	Tennessee.....
Kansas.....	Kansas.....	Texas.....	Texas.....
Kentucky.....	Kentucky.....	Utah.....	Utah.....
Louisiana.....	Louisiana.....	Vermont.....	Vermont.....
Maine.....	Maine.....	Virginia.....	Virginia.....
Maryland.....		Washington.....	Washington.....
Massachusetts.....	Massachusetts.....	West Virginia.....	West Virginia.....
Michigan.....	Michigan.....	Wisconsin.....	Wisconsin.....
Minnesota.....	Minnesota.....	Wyoming.....	Wyoming.....
Mississippi.....	Mississippi.....	Alaska ¹	Alaska ¹
Missouri.....	Missouri.....	Hawaii Territory.....	Hawaii Territory.....
Montana.....	Montana.....	Philippine Islands.....	Philippine Islands.....
Nebraska.....	Nebraska.....	Porto Rico.....	Porto Rico.....
Nevada ¹	Nevada ¹		

¹ Data not given by months.

For most of the diseases four tables are given: (1) The average or estimated expectancy, (2) the number of cases reported, (3) the number of deaths reported, and (4) case rates, death rates, and case fatality rates. The estimated expectancy, given for some of the diseases, is the result of an attempt to ascertain from the experience of recent years how many cases of the disease under consideration might be expected in 1928.

In comparing the figures for 1928 with the estimated expectancy, or with reports for preceding years, it should be borne in mind that there has been a gradual improvement in the reporting of communicable diseases during the last few years. An increase in the number of cases reported may be due to better reporting of the particular disease rather than to an increase in the number of cases occurring.

In some instances comparatively large numbers of cases of diseases reported in certain States may be due to the system of reporting rather than to unusual prevalence of the diseases. For instance, in Mississippi physicians report some diseases monthly to the State health officer, giving the number of cases occurring in their practice during the month. This method of reporting probably is responsible, in part, at least, for the comparatively large numbers of cases of certain diseases reported in Mississippi.

Tabulations of reported cases of and deaths from communicable diseases, similar to the tables here presented, have been issued by the United States Public Health Service for the years 1912 to 1927, inclusive (Reprints Nos. 163, 208, 298, 345, 426, 505, 551, 643, 681, 791, 879, 974, 1056, 1132, and Supplements No. 67 and No. 73, respectively).

As long as the supply lasts, copies of Supplement No. 79 may be had free on request by subscribers of Public Health Reports and others desiring them. Address the Surgeon General, United States Public Health Service, Washington, D. C.

Summary of Notifiable Diseases in States, 1928

CHICKEN POX

47 States:¹

Cases reported, 1928 (population 119,481,000)	205, 858
Average, years 1922-1927	177, 428
Cases per 1,000 inhabitants, 1928	1. 72
Cases per 1,000 inhabitants, average	1. 56

43 States:¹

Deaths registered, 1928 (population 114,588,000)	129
Deaths per 1,000 inhabitants, 1928	0. 001
Cases reported for each death registered, 1928	1, 486

¹ The District of Columbia is also included.

DIPHTHERIA

47 States:¹

Cases reported, 1928 (population 119,481,000).....	91, 156
Estimated expectancy, based on years 1921-1927.....	122, 254
Cases per 1,000 inhabitants, 1928.....	0. 76
Cases per 1,000 inhabitants, estimated expectancy.....	1. 08

45 States:¹

Deaths registered, 1928 (population 117,469,000).....	8, 366
Deaths per 1,000 inhabitants, 1928.....	0. 07
Cases reported for each death registered, 1928.....	11

GONORRHEA

42 States:

Cases reported, 1928 (population 114,722,000).....	149, 783
Cases per 1,000 inhabitants, 1928.....	1. 31

INFLUENZA

45 States:¹

Deaths registered, 1928 (population 117,469,000).....	50, 295
Deaths per 1,000 inhabitants, 1928.....	0. 43

LETHARGIC ENCEPHALITIS

41 States:¹

Deaths registered, 1928 (population 109,999,000).....	1, 260
Deaths per 1,000 inhabitants, 1928.....	0. 01

MALARIA

32 States:

Cases reported, 1928 (population 91,594,000).....	166, 521
Cases per 1,000 inhabitants, 1928.....	1. 82

37 States:¹

Deaths registered, 1928 (population 111,648,000).....	4, 291
Deaths per 1,000 inhabitants, 1928.....	0. 04

30 States:

Deaths registered, 1928 (population 89,582,000).....	4, 145
Deaths per 1,000 inhabitants, 1928.....	0. 05
Cases reported for each death registered, 1928.....	40

MEASLES

47 States:¹

Cases reported, 1928 (population 119,481,000).....	561, 721
Estimated expectancy, based on years 1921-1927.....	320, 690
Cases per 1,000 inhabitants, 1928.....	4. 70
Cases per 1,000 inhabitants, estimated expectancy.....	2. 83

45 States:¹

Deaths registered, 1928 (population 117,469,000).....	5, 490
Deaths per 1,000 inhabitants, 1928.....	0. 05
Cases reported for each death registered, 1928.....	99

¹ The District of Columbia is also included.

MENINGOCOCCUS MENINGITIS

40 States: ^{1 2}	
Cases reported, 1928 (population 106,631,000).....	4, 996
Estimated expectancy, based on years 1921-1927.....	1, 893
Cases per 1,000 inhabitants, 1928.....	0. 047
Cases per 1,000 inhabitants, estimated expectancy.....	0. 019
44 States: ¹	
Deaths registered, 1928 (population 117,013,000).....	2, 727
Deaths per 1,000 inhabitants, 1928.....	0. 023
40 States: ^{1 2}	
Deaths registered, 1928 (population 110,300,000).....	2. 416
Deaths per 1,000 inhabitants, 1928.....	0. 022
Cases reported for each death registered, 1928.....	2

MUMPS

41 States:	
Cases reported, 1928 (population 105,072,000).....	137, 671
Average, years 1922-1927.....	84, 700
Cases per 1,000 inhabitants, 1928.....	1. 31
Cases per 1,000 inhabitants, average.....	0. 84
42 States:	
Deaths registered, 1928 (population 113,959,000).....	88
Deaths per 1,000 inhabitants, 1928.....	0. 001
37 States:	
Deaths registered, 1928 (population 100,179,000).....	75
Deaths per 1,000 inhabitants, 1928.....	0. 001
Cases reported for each death registered, 1928.....	1. 667

PELLAGRA

17 States: ¹	
Cases reported, 1928 (population 44,091,000).....	24, 690
37 States: ¹	
Deaths registered, 1928 (population 99,319,000).....	7, 499
Deaths per 1,000 inhabitants, 1928.....	0. 076

PNEUMONIA (ALL FORMS)

44 States: ¹	
Deaths registered, 1928 (population 113,179,000).....	114, 373
Deaths per 1,000 inhabitants, 1928.....	1. 01

POLIOMYELITIS

42 States: ¹	
Cases reported, 1928 (population 105,820,000).....	5, 019
Estimated expectancy, based on years 1921-1927.....	3, 323
Cases per 1,000 inhabitants, 1928.....	0. 047
Cases per 1,000 inhabitants, estimated expectancy.....	0. 033
45 States: ¹	
Deaths registered, 1928 (population 117,469,000).....	1, 397
Deaths per 1,000 inhabitants, 1928.....	0. 012
41 States: ¹	
Deaths registered, 1928 (population 106,361,000).....	1, 293
Deaths per 1,000 inhabitants, 1928.....	0. 012
Cases reported for each death registered, 1928.....	4

¹ The District of Columbia is also included.² Not the same States.

SCARLET FEVER

47 States: ¹

Cases reported, 1928 (population 119,481,000)	174, 692
Estimated expectancy, based on years 1921-1927	179, 160
Cases per 1,000 inhabitants, 1928	1. 46
Cases per 1,000 inhabitants, estimated expectancy	1. 58

45 States: ¹

Deaths registered, 1928 (population 117,469,000)	2, 181
Deaths per 1,000 inhabitants, 1928	0. 02
Cases reported for each death registered, 1928	79

SEPTIC SORE THROAT .

29 States:

Cases reported, 1928 (population 70,456,000)	3, 505
Cases per 1,000 inhabitants, 1928	0. 05

31 States: ¹

Deaths registered, 1928 (population 74,029,000)	940
Deaths per 1,000 inhabitants, 1928	0. 01

SMALLPOX

47 States: ¹

Cases reported, 1928 (population 119,481,000)	38, 432
Estimated expectancy, based on years 1921-1927	34, 775
Cases per 1,000 inhabitants, 1928	0. 32
Cases per 1,000 inhabitants, estimated expectancy	0. 31

45 States: ¹

Deaths registered, 1928 (population 117,469,000)	139
Deaths per 1,000 inhabitants, 1928	0 001
Cases reported for each death registered, 1928	276

SYPHILIS

42 States:

Cases reported, 1928 (population 114,722,000)	186, 469
Cases per 1,000 inhabitants, 1928	1. 63

TUBERCULOSIS (ALL FORMS)

44 States: ¹

Deaths registered, 1928 (population 117,392,000)	90, 734
Deaths per 1,000 inhabitants, 1928	0. 773

TUBERCULOSIS (RESPIRATORY SYSTEM)

41 States: ¹

Deaths registered, 1928 (population 110,029,000)	76, 022
Deaths per 1,000 inhabitants, 1928	0. 691

TYPHOID FEVER

46 States: ¹

Cases reported, 1928 (population 117,053,000)	26, 951
Estimated expectancy, based on years 1921-1927	36, 492
Cases per 1,000 inhabitants, 1928	0. 23
Cases per 1,000 inhabitants, estimated expectancy	0. 33

¹ The District of Columbia is also included.

45 States: ¹

Deaths registered, 1928 (population 117,469,000).....	5, 878
Deaths per 1,000 inhabitants, 1928.....	0. 05
Cases reported for each death registered, 1928.....	4

WHOOPING COUGH

47 States: ¹

Cases reported, 1928 (population 119,481,000).....	159, 337
Average, years 1922- 1927.....	163, 029
Cases per 1,000 inhabitants, 1928.....	1. 33
Cases per 1,000 inhabitants, average.....	1. 43

45 States: ¹

Deaths registered, 1928 (population 117,469,000).....	5, 876
Deaths per 1,000 inhabitants, 1928.....	0. 05
Cases reported for each death registered, 1928.....	26

THE SMALLPOX (ALASTRIM) EPIDEMIC IN HOLLAND

(From the report of Dr. N. M. Josephus Jitta to the International Office)

According to the report of Doctor Jitta, Director of Public Health of Holland, at the session of the Office International d'Hygiene Publique, October, 1929, smallpox (alastrim) was imported into Holland in the person of a sailor coming from the Dutch Colony in the Indies, who arrived at Rotterdam on May 24, and who had been ill for a month. His wife became ill on July 3 and a daughter on July 17. This daughter was the only one of their four children who had never been vaccinated; the other three children did not contract the disease. Another sailor who had been in contact with this source of infection on June 5 also became ill, and his son contracted the disease later and died on July 15, after five days of illness. Two days later another son became ill. The child who died had been admitted into a ward of a hospital, and between July 20 and 27, 8 other cases developed, 1 case in a physician and 2 cases in patients who were undergoing treatment in the hospital. The epidemic continued in the institution for a number of days and, unfortunately, the first vaccine used for immunizing was not sufficiently potent to give protection.

On July 27 cases began to appear outside the hospital, and after a great deal of discussion a diagnosis of "alastrim" was made. In the beginning the cases were very mild, and a number of those attacked did not call a physician.

Isolation was not resorted to at first. Soon the disease began to spread rapidly outside of Rotterdam. Physicians advised vaccination and this measure was carried out in the large industrial plants.

¹ The District of Columbia is also included.

In the beginning, there was great reluctance in pronouncing the disease to be smallpox for the reason that the measures prescribed by the authorities against smallpox are very severe, and it was feared that the enforcement of such measures might lead to the nonreport of cases. However, a royal decree was promulgated, making obligatory the reporting of cases of "alastrim." Later, the disease assumed a graver aspect, though fatal cases appeared to have occurred in Rotterdam only.

There was much controversy between the authorities of the several hospitals, some considering the cases as "alastrim" because of their mildness; others regarding the cases as smallpox because of their virulence, particularly when it was stated that even hemorrhagic cases had occurred. A commission of experts, named by Doctor Jitta, made the following observations in Rotterdam: There was high fever in the initial stages, followed by umbilication of many of the lesions, secondary fever, and scars, upon healing, with the characteristic odor of smallpox. The commission, therefore, made a diagnosis of smallpox, but recognizing that the type of smallpox seen in the Indies is a great deal more severe than that observed in the recent epidemic.

Doctor Jitta stated, without comment or interpretation, that the mortality was 5.5 per cent in Rotterdam and nil in the remainder of the population. The reaction of Paul (corneal test) was weakly positive or negative; the virus from the pustules was very similar to that seen in ordinary smallpox, but quite different from the vaccine lymph. The lesions were rarely confluent and collapsed completely when their contents were evacuated with a needle.

The influence of previous vaccination was quite marked, inasmuch as the deaths occurred in persons who had either never been vaccinated or who had been vaccinated in early childhood only. One-fourth of the cases occurred in persons under six years of age, none of whom had been vaccinated; another fourth occurred in persons under 30; while one-half of all the cases were in persons over 30 years of age. These persons had been vaccinated at some time.

It is not possible at this time to give the number of persons who have been vaccinated as a result of this outbreak, but it is believed that at least 1,200,000 persons were vaccinated following the appearance of the disease. Following this extensive vaccination there appeared 68 cases suspected of being post-vaccinal encephalitis, 14 of whom died. In general, it may be said that there occurred 1 case of encephalitis for each 20,000 vaccinations, and approximately 1 death from encephalitis for each 111,000 persons vaccinated.

STUDIES IN NATURAL ILLUMINATION IN SCHOOL ROOMS

The science of lighting rooms by means of daylight has not kept pace with the science of artificial illumination. The fact that daylight is abundant and costs nothing has perhaps led to the delay in the development of the principles underlying the proper utilization of daylight.

This lack of knowledge of the present condition of the natural lighting of schools and factories has in recent years led to an intensive study of the actual conditions prevailing, and to a study of the principles underlying good daylighting. The United States Public Health Service is engaged in such a study. A preliminary report on the natural lighting of schools was published as Bulletin No. 159, and a second report ¹ has recently been published.

The second bulletin gives an analysis of the effect of clouds upon the inside illumination (for desks in different portions of the school-rooms and for rooms with different directions of exposure), the outside illumination, and the brightness of the sky. There are also given an analysis of the ratio of the inside illumination on a desk to the total outside illumination, and the ratio of the inside illumination to the outside sky brightness, as well as the effect of clouds upon each of these. Other subjects studied in a similar manner are the distribution of light within a room, the changes in the distribution accompanying changes in other factors or attendant circumstances including direction of exposure; and, finally, there is presented the study of the relationship between the inside illumination and the area of the sky vault visible from each respective desk. A generalized formula for forecasting the inside illumination from the plans of a building under any set of attendant circumstances is also given.

This publication is of a technical nature and will be of interest to public-school officials (especially those charged with the responsibility of constructing buildings), architects, and illuminating engineers. As long as the supply for free distribution lasts, a copy of this bulletin, Public Health Bulletin No. 188, may be obtained by applying to the Surgeon General, United States Public Health Service, Washington, D. C.

¹ *Studies in Natural Illumination in School Rooms. Part III: Effect of Clouds on Daylight Illumination and on Daylight Ratios* (Public Health Bulletin No. 188). The first bulletin in this series on natural illumination (containing both Parts I and II) was issued as Public Health Bulletin No. 159—Part I: *General Considerations of Daylight Illumination*; Part II: *Illumination Study at Hagerstown, Md.* See also Reprint No. 1261 from the Public Health Reports: *A Review of the Current Practice of the Lighting of School Buildings in the United States.*

FIRST INTERNATIONAL MENTAL HYGIENE CONGRESS

To be held in Washington, D. C., May 5-10, 1930

The First International Congress on Mental Hygiene will be held in Washington, D. C., May 5-10, 1930. President Hoover has accepted the honorary presidency of the congress, and delegates are expected from more than 30 countries. While the list of speakers and the program have not yet been completed, they will be announced well in advance of the congress.

According to a preliminary statement, practically all aspects of the subject of mental hygiene will be dealt with at the congress. Details of the program are being worked out by a committee in collaboration with correspondents in other countries. The general topics are now ready and are contained in a 33-page *Preliminary Announcement* from John R. Shillady, Administrative Secretary, 370 Seventh Avenue, New York City. Following are some of the subjects, presented in a general descriptive manner, not as specific titles:

- (a) Magnitude of the mental-hygiene problem as a health problem.
- (b) Organization of community facilities for prevention, care, and treatment.
- (c) Organization of the mental hospital and its rôle in community life.
- (d) Psychopathic hospitals and psychopathic wards in general hospitals.
- (e) Care and treatment of mental patients outside of institutions.
- (f) Organization of special types of clinical service, as in courts of justice, out-patient departments of hospitals, community clinics, *grade and high school clinics*, *college clinics*, and clinics in social welfare agencies.
- (g) Types of personnel required in mental hygiene work (physician, psychologist, nurse, social worker, and occupational therapist).
- (h) Methods of training of different types of personnel.
- (i) Clinical and social research in the field of mental hygiene.
- (j) Teaching of mental hygiene and psychiatry in the medical schools: (1) Courses for the general student; (2) courses for the student specializing.
- (k) Mental hygiene in industry, personnel work, and vocational guidance.
- (l) Psychiatric social work, its scope and functions.
- (m) Mental hygiene aspects of delinquency, dependency, and other types of social maladjustment.
- (n) Marital relationships.
- (o) Social aspects of mental deficiency.
- (p) Mental hygiene and education; grade school, high school, college.
- (q) Special problems of adolescence.
- (r) Problems presented by children of special type: (1) The child with superior intelligence; (2) the neurotic child; (3) the child with sensory and motor defects.
- (s) Methods and possibilities of the child guidance clinic.
- (t) Significance of parent-child and teacher-child relationships in character and personality development.
- (u) Parent and teacher training.
- (v) Mental hygiene of religious, ethical, and moral teaching.
- (w) Problems of the pre-school period.
- (z) Significance of these problems for the future of the child as individual and as citizen.

(y) Possibilities in the future of human relationships in the light of an increasing knowledge of those factors that help and hinder the emotional, physical, and intellectual development of the individual.

The American Psychiatric Association and the American Association for the Study of the Feeble-Minded will hold their annual meeting in Washington at the same time as the First International Congress on Mental Hygiene, hence the assemblage of a large and representative number of people especially interested in mental hygiene is expected during the week of the congress.

Further information regarding the congress may be obtained from headquarters at the address given above.

PAN AMERICAN CONFERENCE OF CHILD HYGIENE

The Sixth Pan American Conference of Child Hygiene will meet at Lima, Peru, July 4 to 11, 1930. The Honorable Augusto B. Leguía, President of Peru, is Honorary President of the conference; Dr. Sebastián Lorente, Director of Health of Peru, is President; and Dr. Carlos Enrique Paz Soldán, Honorary Director of the Pan American Sanitary Bureau, is Secretary-General.

The subjects for discussion will be divided as follows:

Group I. General medical questions:

- (a) Medicine.
- (b) Surgery.
- (c) Hygiene.

Group II. General social questions:

- (a) Relief.
- (b) Legislation.
- (c) Education.

It is expected that delegates from all the American Republics will be present.

COURT DECISION RELATING TO PUBLIC HEALTH

Payment of compensation of county superintendent of public health.—(Oklahoma Supreme Court; Board of Commissioners of Creek County v. Robinson, 282 P. 299; decided October 15, 1929.) Section 8680 of the Compiled Statutes, 1921, provided as follows:

The county superintendent of [public] health shall be paid the sum of \$5 per day for the time actually and necessarily served, to be paid by the board of county commissioners, and payable quarterly out of the salary fund of the county: *Provided*, That in no case except as provided in this act, shall the county commissioners allow or pay, in counties of not more than 10,000 inhabitants, more than \$200 per annum; * * * and in counties over 50,000, more than \$1,500 per annum: *Provided further*, That should an emergency exist on account of dangerous epidemics, the county superintendent of public health and the board of county commissioners may make such provisions, rules, and regulations as may be necessary under such conditions, to prevent the spread of such danger-

ous epidemic, and shall have full power to compel submission to any rules and regulations that they may deem for the best interests of their community to stamp out or prevent the spread of such epidemic. In addition thereto the board of county commissioners may allow and pay the actual and necessary expenses contracted in the discharge of the duties of the superintendent of public health when attempting to control and prevent the spread of any epidemic.

The plaintiff in the lower court was regularly appointed superintendent of public health for Creek County, deriving his appointment from the State health officer. The county excise board made no appropriation for the superintendent's salary or expenses for the fiscal year involved, no agreement was entered into between the board of county commissioners and the superintendent regarding any matter pertaining to the suppression of epidemics or otherwise, and no rules were formulated by the commissioners to be observed by the superintendent. Notwithstanding this, the plaintiff proceeded to function as county superintendent of public health as if an appropriation had been made, and pursuant to statutes and rules he filed quarterly reports with the county commissioners and filed his claims for each month. The claims were disallowed and, at the end of the fiscal year, he brought action to recover on all of them. The lower court rendered judgment in his favor but, on appeal to the supreme court, this judgment was reversed and the entry of judgment for the county commissioners directed.

The contention of the commissioners was that the failure to make an appropriation for the office of county superintendent of public health deprived the courts of authority to render judgment against the county for any sum whatever. In upholding the defendant's contention, the supreme court said:

* * * As we read this statute, we think it does not fall within the class of legislation creating such offices as sheriff or county treasurer, and providing compensation therefor. But instead, under the above section of the statutes quoted, we think the county superintendent of public health falls within the classification of officers, such as a county farm agent, or that class of officers whose authority, of course, exists by virtue of the legislature, as the authority of all officers exists by such authority or by the constitution, but whose compensation and extent thereof are wholly dependent upon the action of the excise board in providing revenue from which they may derive compensation. * * *

DEATHS DURING WEEK ENDED DECEMBER 28, 1929

Summary of information received by telegraph from industrial insurance companies for the week ended December 28, 1929, and corresponding week of 1928. (From the Weekly Health Index, January 2, 1930, issued by the Bureau of the Census, Department of Commerce)

	Week ended Dec 28, 1929	Corresponding week, 1928
Policies in force.....	66, 823, 870	72, 435, 358
Number of death claims	11, 138	13, 077
Death claims per 1,000 policies in force, annual rate..	8. 7	9. 4

Deaths from all causes in certain large cities of the United States during the week ended December 28, 1929, infant mortality, annual death rate, and comparison with corresponding week of 1928. (From the Weekly Health Index, January 2, 1930, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Dec. 28, 1929		Annual death rate per 1,000, corresponding week, 1928	Deaths under 1 year		Infant mortality rate, week ended Dec. 28, 1929 ¹
	Total deaths	Death rate ¹		Week ended Dec. 28, 1929	Corresponding week, 1928	
Total (64 cities).....	7,412	13.1	18.0	686	913	160
Akron.....	46	.....	.....	7	15	72
Albany ¹	42	18.2	22.6	1	3	20
Atlanta.....	90	18.4	31.6	14	19	145
White.....	56	.....	.....	11	11	.....
Colored.....	34	(¹)	(¹)	3	8	.....
Baltimore ¹	207	13.0	16.2	18	18	58
White.....	138	.....	.....	7	14	28
Colored.....	69	(¹)	(¹)	11	4	174
Birmingham.....	73	17.2	17.6	7	8	63
White.....	33	.....	.....	2	7	30
Colored.....	40	(¹)	(¹)	5	1	115
Boston.....	226	14.8	15.7	24	32	66
Bridgeport.....	27	.....	.....	4	6	69
Buffalo.....	153	14.4	15.6	13	12	56
Cambridge.....	21	8.7	14.1	3	5	54
Camden.....	37	14.3	15.4	2	6	85
Canton.....	29	13.0	21.5	3	7	71
Chicago ¹	777	12.9	20.4	76	98	68
Cincinnati.....	121	.....	.....	7	27	41
Cleveland.....	201	10.4	18.0	17	33	50
Columbus.....	74	12.9	28.7	2	15	19
Dallas.....	68	10.3	21.1	8	14	.....
White.....	55	.....	.....	7	10	.....
Colored.....	13	(¹)	(¹)	1	4	.....
Dayton.....	42	11.9	18.4	3	2	48
Denver.....	92	16.4	21.7	4	15	39
Des Moines.....	28	9.6	16.9	0	0	0
Detroit.....	278	10.5	20.1	24	83	55
Duluth.....	24	10.7	7.2	1	1	24
El Paso.....	42	18.6	22.6	3	6	.....
Erie.....	33	.....	.....	4	2	82
Fall River ¹	24	9.3	11.7	1	5	19
Flint.....	26	9.1	11.9	5	8	61
Fort Worth.....	42	12.9	13.2	5	1	.....
White.....	34	.....	.....	3	0	.....
Colored.....	8	(¹)	(¹)	2	1	.....
Grand Rapids.....	43	13.7	19.1	7	6	103
Houston.....	81	.....	.....	8	9	.....
White.....	60	.....	.....	6	8	.....
Colored.....	21	(¹)	(¹)	2	1	.....
Indianapolis.....	138	18.9	22.4	9	9	72
White.....	109	.....	.....	8	8	74
Colored.....	29	(¹)	(¹)	1	1	60
Jersey City.....	71	11.4	11.6	5	13	39
Kansas City, Kans.....	49	21.7	19.4	8	3	177
White.....	28	.....	.....	4	1	101
Colored.....	21	(¹)	(¹)	4	2	717
Kansas City, Mo.....	112	15.0	20.5	12	9	101
Knoxville.....	33	16.4	18.9	6	6	131
White.....	30	.....	.....	4	5	98
Colored.....	3	(¹)	(¹)	2	1	422
Los Angeles.....	286	.....	.....	15	22	44
Louisville.....	69	11.0	13.7	4	7	32
White.....	50	.....	.....	3	6	28
Colored.....	19	(¹)	(¹)	1	1	63
Lowell.....	23	.....	.....	0	4	0
Lynn.....	19	9.4	13.4	4	3	110
Memphis.....	70	19.2	27.5	11	5	130
White.....	37	.....	.....	5	2	95
Colored.....	33	(¹)	(¹)	6	3	198
Milwaukee.....	116	11.1	18.5	19	25	83
Minneapolis.....	113	13.0	17.8	8	13	49
Nashville.....	28	10.5	20.2	1	6	26
White.....	20	.....	.....	0	6	0
Colored.....	8	(¹)	(¹)	1	0	63
New Bedford.....	28	.....	.....	2	3	43
New Haven.....	38	10.6	8.9	4	2	61

Footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended December 28, 1929, infant mortality, annual death rate, and comparison with corresponding week of 1928. (From the Weekly Health Index, January 2, 1930, issued by the Bureau of the Census, Department of Commerce)—Contd.

City	Week ended Dec. 28, 1929		Annual death rate per 1,000, corresponding week, 1928	Deaths under 1 year		Infant mortality rate, week ended Dec. 28, 1929
	Total deaths	Death rate		Week ended Dec. 28, 1929	Corresponding week, 1928	
New Orleans.....	204	24.8	36.3	21	24	104
White.....	114			10	16	70
Colored.....	90	(¹)	(¹)	11	8	185
New York.....	1,547	13.4	13.7	150	138	61
Bronx Borough.....	236	13.0	9.7	20	15	59
Brooklyn Borough.....	516	11.7	12.2	63	57	64
Manhattan Borough.....	592	17.7	19.2	41	56	50
Queens Borough.....	161	9.9	10.1	20	9	82
Richmond Borough.....	42	14.6	18.0	6	1	109
Newark, N. J.....	92	10.2	14.4	6	9	32
Oakland.....	53	10.1	13.4	4	4	44
Oklahoma City.....	41			7	2	140
Omaha.....	48	11.3	22.3	0	9	0
Paterson.....	28	10.1	15.6	2	3	35
Philadelphia.....	446	11.8	16.5	46	60	65
Pittsburgh.....	167	13.0	42.8	22	51	76
Portland, Oreg.....	88			2	2	23
Providence.....	70	12.8	13.0	2	6	18
Richmond.....	63	16.9	24.2	9	3	126
White.....	35			3	1	64
Colored.....	28	(¹)	(¹)	6	2	246
Rochester.....	65	10.4	13.7	3	8	25
St. Louis.....	220	13.6	19.4	15	18	51
Salt Lake City ⁴	35	13.3	10.2	8	3	123
San Antonio.....	77	18.5	22.3	6	12	
San Diego.....	37			4	4	77
San Francisco.....	111	9.9	16.8	8	7	51
Schenectady.....	20	11.2	10.6	4	0	127
Seattle.....	99	13.5	18.3	6	7	64
Somerville.....	17	8.7	9.7	1	1	36
Spokane.....	34	16.3	18.2	2	0	52
Springfield, Mass.....	39	13.6	14.0	2	0	33
Syracuse.....	51	13.4	19.4	3	6	36
Tacoma.....	23	10.9	25.6	1	2	26
Toledo.....	91	15.2	24.4	3	7	28
Trenton.....	45	16.9	15.0	4	4	72
Utica.....	28	14.0	18.1	0	4	0
Washington, D. C.....	140	13.3	16.0	9	11	53
White.....	84			4	4	34
Colored.....	56	(¹)	(¹)	5	7	95
Waterbury.....	11			0	2	0
Wilmington, Del.....	20	8.1	16.7	1	3	28
Worcester.....	43	11.4	11.9	1	5	13
Yonkers.....	41	17.7	15.5	5	4	117

¹ Annual rate per 1,000 population.

² Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.

³ Data for 71 cities.

⁴ Deaths for week ended Friday.

⁵ In the cities for which deaths are shown by color the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 26; Richmond, 32, and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended December 28, 1929, and December 29, 1928

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended December 28, 1929, and December 29, 1928

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Dec 28, 1929	Week ended Dec 29, 1928	Week ended Dec 28, 1929	Week ended Dec 29, 1928	Week ended Dec 28, 1929	Week ended Dec 29, 1928	Week ended Dec 28, 1929	Week ended Dec 29, 1928
New England States:								
Maine.....		20	6	211	4	385	1	0
New Hampshire.....	4	2		2	14	37	0	0
Vermont.....	2	1		292	41	15	0	0
Massachusetts.....	103	93	6	221	171	650	2	1
Rhode Island.....	7	18		9	1	28	0	0
Connecticut.....	23	33	3	297	19	269	3	2
Middle Atlantic States:								
New York.....	157	271	128	441	191	615	13	25
New Jersey.....	132	162	11	584	56	79	4	8
Pennsylvania.....		219				1,409		5
East North Central States:								
Ohio.....	89	121	55	6,957	351	646	12	2
Indiana.....	21	33		3,158	22	220	28	0
Illinois.....	212	242	24	2,657	303	247	9	18
Michigan.....	114	101	3	10,690	163	54	28	13
Wisconsin.....	11	13	22	4,698	485	149	1	4
West North Central States:								
Minnesota.....	24	11	1	108	119	50	5	7
Iowa.....	10	10		27,000	162		1	1
Missouri.....	34	61	11	1,780	11	83	5	17
North Dakota.....	8	14		1,644	98	6	6	2
South Dakota.....	1	1		253	3	26	1	3
Nebraska.....	15	8	8	900	174	5	3	2
Kansas.....	23	18		11,953	116	27	1	2
South Atlantic States:								
Delaware.....	1	1	1	16	1	16	0	0
Maryland.....	23	29	10	1,046	13	40	2	0
District of Columbia.....	6	14		293		1	0	0
West Virginia.....	17	17	17	4,683	90	94	0	0
North Carolina.....	67	63	12		6	25	3	0
South Carolina.....	27	35	903	7,885		1	5	0
Georgia.....	34	11	148	6,123	24	33	6	0
Florida.....	9	15	5	541	7		0	0
East South Central States:								
Kentucky.....	20	14		10,565	10		0	2
Tennessee.....	14	25	109	5,205	16		6	6
Alabama.....	19	26	62	6,261		82	0	0
Mississippi.....	18	19		22,094			1	

¹ New York City only.

² Estimated.

³ Week ended Friday.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended December 28, 1929, and December 29, 1928—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Dec. 28, 1929	Week ended Dec. 29, 1928	Week ended Dec. 28, 1929	Week ended Dec. 29, 1928	Week ended Dec. 28, 1929	Week ended Dec. 29, 1928	Week ended Dec. 28, 1929	Week ended Dec. 29, 1928
West South Central States:								
Arkansas.....	8	21	69	2,830	7	-----	1	1
Louisiana.....	36	28	24	2,343	10	1	6	1
Oklahoma.....	45	68	111	8,592	15	2	5	4
Texas.....	112	47	40	160	51	5	2	1
Mountain States:								
Montana.....	-----	-----	-----	623	38	25	1	2
Idaho.....	-----	2	-----	34	22	11	5	5
Wyoming.....	5	-----	-----	179	3	2	1	1
Colorado.....	6	-----	-----	-----	14	-----	4	-----
New Mexico.....	28	10	-----	2,005	3	-----	0	2
Arizona.....	11	-----	6	495	1	1	3	0
Utah.....	-----	-----	4	14	66	1	2	3
Pacific States:								
Washington.....	14	5	-----	590	15	37	5	2
Oregon.....	7	7	29	2,520	11	39	1	2
California.....	67	55	39	1,232	203	17	14	14

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Dec. 28, 1929	Week ended Dec. 29, 1928	Week ended Dec. 28, 1929	Week ended Dec. 29, 1928	Week ended Dec. 28, 1929	Week ended Dec. 29, 1928	Week ended Dec. 28, 1929	Week ended Dec. 29, 1928
New England States:								
Maine.....	0	1	38	31	0	8	0	2
New Hampshire.....	0	0	13	29	0	0	0	1
Vermont.....	0	0	13	10	6	0	1	0
Massachusetts.....	1	2	203	262	0	0	2	3
Rhode Island.....	0	1	23	26	0	0	0	0
Connecticut.....	1	1	63	50	0	0	0	1
Middle Atlantic States:								
New York.....	1	2	312	400	3	0	8	16
New Jersey.....	0	1	161	123	0	0	3	7
Pennsylvania.....	-----	3	-----	465	-----	0	-----	16
East North Central States:								
Ohio.....	3	2	289	239	136	26	15	6
Indiana.....	1	0	137	61	138	47	0	0
Illinois.....	1	0	455	366	90	55	3	9
Michigan.....	3	2	251	240	57	25	1	5
Wisconsin.....	0	0	92	137	29	16	0	0
West North Central States:								
Minnesota.....	0	0	98	118	8	5	8	2
Iowa.....	0	0	43	48	79	20	2	1
Missouri.....	0	0	57	84	50	33	1	2
North Dakota.....	1	0	44	25	13	4	0	2
South Dakota.....	0	0	11	9	14	9	0	0
Nebraska.....	1	0	54	42	32	35	0	1
Kansas.....	0	0	127	90	24	16	1	1
South Atlantic States:								
Delaware.....	0	0	5	2	0	0	0	0
Maryland.....	0	1	50	56	0	0	7	3
District of Columbia.....	0	0	25	7	0	0	1	0
West Virginia.....	0	0	54	31	14	26	8	9
North Carolina.....	3	1	60	44	11	1	5	5
South Carolina.....	2	2	32	11	3	1	1	16
Georgia.....	0	0	42	16	0	0	7	2
Florida.....	0	0	3	10	2	3	1	2
East South Central States:								
Kentucky.....	0	0	52	59	31	15	0	0
Tennessee.....	1	0	20	21	5	1	8	4
Alabama.....	0	0	29	24	2	8	4	8
Mississippi.....	0	0	17	10	2	0	7	2

¹ Week ended Friday.

² Figures for 1929 are exclusive of Oklahoma City and Tulsa.

³ 513 cases in delayed reports included.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended December 28, 1929, and December 29, 1928—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Dec. 28, 1929	Week ended Dec. 29, 1928	Week ended Dec. 28, 1929	Week ended Dec. 29, 1928	Week ended Dec. 28, 1929	Week ended Dec. 29, 1928	Week ended Dec. 28, 1929	Week ended Dec. 29, 1928
West South Central States:								
Arkansas.....	0	0	19	15	16	1	4	4
Louisiana.....	0	0	20	24	0	4	7	5
Oklahoma ¹	1	1	46	51	129	30	8	7
Texas.....	0	0	61	15	54	8	2	1
Mountain States:								
Montana.....	0	0	28	21	10	12	0	0
Idaho.....	0	1	4	5	7	10	0	1
Wyoming.....	0	0	6	7	3	9	1	1
Colorado.....	1	0	28	23	23	0	0	4
New Mexico.....	0	0	22	11	4	0	1	0
Arizona.....	0	0	9	0	16	1	1	4
Utah ¹	0	0	14	7	0	4	0	0
Pacific States:								
Washington.....	1	1	50	28	123	25	6	2
Oregon.....	0	0	38	23	14	40	1	3
California.....	1	1	208	130	60	19	4	5

¹ Week ended Friday

¹ Figures for 1929 are exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week.

State	Menin- gococ- cus menin- gitis	Diph- theria	Influ- enza	Malaria	Measles	Pella- gra	Pollo- myelitis	Scarlet fever	Small- pox	Ty- phoid fever
October, 1929										
Florida.....		65	9	104	7	4	1	33	1	
November, 1929										
Alabama.....	6	332	274	787	52	33	3	295	206	45
Florida.....	1	84	8	192	11	9	2	47	2	4
Idaho.....	10	4	3		344		0	74	65	1
Illinois.....	32	966	96	13	891	1	8	2,015	487	62
Iowa.....	3	42					8	209	216	93
Louisiana.....	4	192	63	83	17	15	3	83	4	45
Massachusetts.....	13	556	25	3	395	1	19	874	0	23
Minnesota.....	6	134	3		284		3	441	14	25
Missouri.....	30	382	54	32	150		3	545	90	32
Nevada.....										
Oregon.....	6	63	109		58		8	168	35	11
Washington.....	9	68	37		88		4	196	250	35

¹ None of the diseases listed in this table were reported for the month.

October, 1929		November, 1929	
Florida:	Cases	Actinomycosis:	Cases
Chicken pox.....	5	Illinois.....	1
Dengue.....	3	Anthrax:	
Dysentery.....	1	Massachusetts ¹	1
Mumps.....	32	Chicken pox:	
Paratyphoid fever.....	1	Alabama.....	91
Typhus fever.....	1	Florida.....	40
Whooping cough.....	18	Idaho.....	192

¹ The case of anthrax in Massachusetts is for the month of October, 1929.

Chicken pox—Continued.		Cases	Puerperal fever—Continued.		Cases
Illinois	.....	2, 144	Oregon	.....	1
Louisiana	.....	44	Washington	.....	5
Massachusetts	.....	1, 306	Rabies in animals:		
Minnesota	.....	1, 180	Illinois	.....	7
Missouri	.....	462	Louisiana	.....	5
Nevada	.....	3	Missouri	.....	10
Oregon	.....	271	Scabies:		
Washington	.....	701	Oregon	.....	22
Dengue:			Washington	.....	4
Alabama	.....	2	Septic sore throat:		
Dysentery:			Idaho	.....	1
Florida	.....	2	Illinois	.....	17
Illinois	.....	14	Massachusetts	.....	17
Louisiana	.....	5	Missouri	.....	40
Massachusetts	.....	6	Nevada	.....	7
Minnesota	.....	12	Oregon	.....	11
Washington	.....	1	Washington	.....	4
Favus:			Tetanus:		
Oregon	.....	1	Illinois	.....	12
German measles:			Louisiana	.....	4
Illinois	.....	41	Massachusetts	.....	2
Massachusetts	.....	35	Missouri	.....	4
Washington	.....	10	Washington	.....	1
Hookworm disease:			Trachoma:		
Louisiana	.....	24	Illinois	.....	2
Impetigo contagiosa:			Massachusetts	.....	8
Oregon	.....	19	Missouri	.....	24
Washington	.....	7	Oregon	.....	1
Lead poisoning:			Trichinosis:		
Illinois	.....	10	Massachusetts	.....	1
Massachusetts	.....	3	Tularaemia:		
Lethargic encephalitis:			Illinois	.....	2
Alabama	.....	3	Louisiana	.....	2
Illinois	.....	5	Minnesota	.....	1
Louisiana	.....	1	Missouri	.....	3
Massachusetts	.....	3	Typhus fever:		
Minnesota	.....	3	Florida	.....	7
Oregon	.....	2	Undulant fever:		
Washington	.....	3	Alabama	.....	3
Milk sickness:			Illinois	.....	9
Illinois	.....	1	Iowa	.....	4
Mumps:			Minnesota	.....	1
Alabama	.....	18	Missouri	.....	5
Florida	.....	63	Nevada	.....	1
Idaho	.....	64	Vincent's angina:		
Illinois	.....	372	Illinois	.....	3
Massachusetts	.....	409	Oregon	.....	5
Missouri	.....	36	Washington	.....	3
Nevada	.....	11	Whooping cough:		
Oregon	.....	79	Alabama	.....	97
Washington	.....	266	Florida	.....	20
Ophthalmia neonatorum:			Idaho	.....	38
Illinois	.....	43	Illinois	.....	974
Massachusetts	.....	129	Louisiana	.....	17
Missouri	.....	2	Massachusetts	.....	668
Paratyphoid fever:			Minnesota	.....	156
Florida	.....	1	Missouri	.....	232
Louisiana	.....	1	Oregon	.....	34
Puerperal fever:			Washington	.....	117
Illinois	.....	2			

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 98 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 31,565,000. The estimated population of the 91 cities reporting deaths is more than 29,995,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended December 21, 1929, and December 22, 1928

	1929	1928	Estimated expectancy
<i>Cases reported</i>			
Diphtheria:			
44 States.....	1,702	1,754	-----
98 cities.....	778	867	1,127
Measles:			
41 States.....	3,479	4,305	-----
98 cities.....	664	1,062	-----
Meningococcus meningitis:			
43 States.....	140	111	-----
98 cities.....	100	78	-----
Poliomyelitis:			
45 States.....	24	35	-----
Scarlet fever:			
44 States.....	3,833	3,102	-----
98 cities.....	1,516	1,095	1,253
Smallpox:			
44 States.....	1,007	489	-----
98 cities.....	142	47	41
Typhoid fever:			
44 States.....	193	166	-----
98 cities.....	32	25	43
<i>Deaths reported</i>			
Influenza and pneumonia:			
91 cities.....	1,025	2,075	-----
Smallpox:			
91 cities.....	0	0	-----

City reports for week ended December 21, 1929

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1920 is included. In obtaining the estimated expectancy, the figures are smoothed then necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Population, July 1, 1928, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND									
Maine:									
Portland.....	78,600	27	2	0	-----	0	2	1	6
New Hampshire:									
Concord.....	(1)	0	0	0	-----	0	0	0	1
Manchester.....	85,700	0	3	0	-----	0	0	0	2
Vermont:									
Barre.....	(1)	0	0	0	-----	0	0	0	

¹ No estimate of population made.

City reports for week ended December 21, 1929—Continued

Division, State, and city	Population, July 1, 1928, estimated	Chick-en pox, cases re-ported	Diphtheria		Influenza		Meas-sles, cases re-ported	Mumps, cases re-ported	Pneu-monia, deaths re-ported
			Cases, esti-mated expec-tancy	Cases re-ported	Cases re-ported	Deaths re-ported			
NEW ENGLAND—contd.									
Massachusetts:									
Boston	799,200	81	48	46	3	1	13	47	26
Fall River	134,300	9	5	3	—	0	0	0	3
Springfield	149,800	16	5	9	—	0	2	0	3
Worcester	197,600	14	6	5	1	0	23	2	3
Rhode Island:									
Pawtucket	73,100	8	2	0	—	0	0	0	4
Providence	286,300	2	11	3	—	0	0	0	12
Connecticut:									
Bridgeport	(1)	4	7	1	5	2	1	1	2
Hartford	172,300	7	8	8	1	0	0	0	9
New Haven	187,900	37	2	0	—	1	0	5	1
MIDDLE ATLANTIC									
New York:									
Buffalo	555,800	27	20	13	—	1	3	5	15
New York	6,017,500	230	204	129	63	24	33	57	205
Rochester	328,200	6	9	0	—	0	8	3	4
Syracuse	199,300	25	4	1	—	0	0	43	6
New Jersey:									
Camden	135,400	6	6	9	—	1	2	0	3
Newark	473,600	82	20	27	5	1	30	7	20
Trenton	139,000	3	5	0	1	2	9	0	4
Pennsylvania:									
Philadelphia	2,064,200	109	81	27	14	6	22	0	56
Pittsburgh	673,800	43	25	14	—	2	14	2	27
Reading	115,400	19	4	0	—	0	1	0	2
Scranton	144,700	—	—	—	—	—	—	—	—
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	413,700	20	16	8	1	1	8	0	16
Cleveland	1,010,300	151	47	17	17	3	7	10	15
Columbus	299,000	21	9	7	3	3	0	3	4
Toledo	313,200	105	14	4	2	2	246	7	3
Indiana:									
Fort Wayne	105,300	5	5	2	—	0	0	0	2
Indianapolis	382,100	28	11	3	—	1	6	2	25
South Bend	86,100	5	2	3	—	0	0	0	1
Terre Haute	73,500	4	2	0	—	1	0	0	1
Illinois:									
Chicago	3,157,400	153	102	144	9	4	23	34	71
Springfield	67,200	2	2	1	2	2	0	0	0
Michigan:									
Detroit	1,378,900	91	67	70	3	5	78	52	31
Flint	148,800	16	5	2	—	0	0	0	3
Grand Rapids	164,200	3	3	0	—	1	1	0	0
Wisconsin:									
Kenosha	56,500	0	1	0	—	0	0	0	2
Madison	50,500	5	2	0	—	0	58	3	—
Milwaukee	544,200	156	23	4	1	1	7	25	13
Racine	74,400	8	3	1	—	0	0	0	0
Superior	(1)	2	0	0	—	0	17	0	0
WEST NORTH CENTRAL									
Minnesota:									
Duluth	116,800	11	1	0	—	0	43	1	2
Minneapolis	455,900	200	22	8	—	2	30	24	7
St. Paul	(1)	19	15	1	—	0	4	4	8
Iowa:									
Davenport	(1)	7	0	0	—	—	0	1	—
Des Moines	151,900	0	4	1	—	—	0	0	—
Sioux City	80,000	9	1	0	—	—	0	0	—
Waterloo	37,100	17	0	0	—	—	22	0	—
Missouri:									
Kansas City	391,000	23	9	3	—	3	1	0	20
St. Joseph	78,500	3	2	0	—	0	0	0	1
St. Louis	848,100	18	46	20	—	—	0	6	—
North Dakota:									
Fargo	(1)	7	0	0	—	0	0	2	0
Grand Forks	(1)	4	0	0	—	—	0	1	—

1 No estimate of population made.

City reports for week ended December 21, 1929—Continued

Division, State, and city	Population, July 1, 1928, estimated	Chick- en pox, cases re- ported	Diphtheria		Influenza		Meas- les, cases re- ported	Mumps, cases re- ported	Pneu- monia, deaths re- ported
			Cases, esti- mated expect- ancy	Cases re- ported	Cases re- ported	Deaths re- ported			
WEST NORTH CENTRAL— continued									
Nebraska:									
Omaha.....	222,800	12	6	21	-----	0	4	0	11
Kansas:									
Topeka.....	62,800	29	2	3	-----	0	3	13	4
Wichita.....	90,300	9	4	1	-----	0	2	1	7
SOUTH ATLANTIC									
Delaware:									
Wilmington.....	128,500	7	2	0	-----	0	0	3	3
Maryland:									
Baltimore.....	830,400	59	35	14	10	2	1	5	28
Cumberland.....	(1)	0	2	1	-----	0	0	0	3
Frederick.....	(1)	1	0	0	-----	0	0	0	0
District of Columbia:									
Washington.....	552,000	21	19	11	1	0	0	0	16
Virginia:									
Lynchburg.....	38,600	17	3	2	-----	0	17	5	2
Richmond.....	194,400	7	8	5	-----	1	1	2	7
Roanoke.....	64,600	2	3	3	-----	0	0	0	1
West Virginia:									
Charleston.....	55,200	12	1	2	-----	0	0	0	2
Wheeling.....	(1)	8	2	0	-----	1	0	0	4
North Carolina:									
Raleigh.....	(1)	2	1	0	-----	0	0	0	1
Wilmington.....	39,100	0	1	0	-----	0	0	0	5
Winston-Salem.....	80,000	1	2	1	3	0	0	8	7
South Carolina:									
Charleston.....	75,900	1	1	2	75	-----	0	1	3
Columbia.....	50,600	3	1	0	-----	0	0	1	1
Georgia:									
Atlanta.....	255,100	6	4	11	40	2	1	10	7
Brunswick.....	(1)	0	0	0	-----	0	1	2	1
Savannah.....	99,900	4	1	2	6	1	0	0	4
Florida:									
Miami.....	156,700	0	3	4	-----	0	0	0	4
St. Petersburg.....	53,300	-----	0	-----	-----	0	-----	-----	0
Tampa.....	113,400	10	2	3	-----	0	0	15	3
EAST SOUTH CENTRAL									
Kentucky:									
Covington.....	59,000	0	1	0	-----	0	0	0	1
Tennessee:									
Memphis.....	190,200	3	7	4	-----	3	0	1	11
Nashville.....	139,600	2	2	2	-----	2	0	0	8
Alabama:									
Birmingham.....	222,400	3	5	5	10	2	0	0	8
Mobile.....	69,600	3	1	4	1	0	0	0	1
Montgomery.....	63,100	0	2	3	1	-----	0	0	-----
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith.....	(1)	5	2	1	-----	-----	0	0	-----
Little Rock.....	79,200	3	1	2	-----	0	0	3	1
Louisiana:									
New Orleans.....	429,400	0	12	19	8	7	16	0	19
Shreveport.....	81,300	1	2	3	-----	0	0	0	5
Oklahoma:									
Tulsa.....	170,500	11	4	3	-----	-----	1	0	-----
Texas:									
Dallas.....	217,800	12	13	15	-----	3	19	0	7
Fort Worth.....	170,600	9	6	4	1	0	1	0	5
Galveston.....	50,600	0	1	0	-----	0	0	0	4
Houston.....	(1)	2	7	12	-----	2	0	0	12
San Antonio.....	218,100	0	4	6	-----	5	0	0	13

1 No estimate of population made.

City reports for week ended December 21, 1929—Continued

Division, State, and city	Population, July 1, 1928, estimated	Chick- en pox, cases re- ported	Diphtheria		Influenza		Mea- sles, cases re- ported	Mumps, cases re- ported	Pneu- monia, deaths re- ported
			Cases, esti- mated expect- ancy	Cases re- ported	Cases re- ported	Deaths re- ported			
MOUNTAIN									
Montana:									
Billings.....	(1)	0	0	0	-----	0	0	21	0
Great Falls.....	(1)	1	1	0	-----	0	2	24	2
Helena.....	(1)	0	0	0	-----	0	1	8	2
Missoula.....	(1)	0	1	0	-----	0	0	1	2
Idaho:									
Boise.....	(1)	3	1	0	-----	0	3	0	0
Colorado:									
Denver.....	294, 200	55	12	4	-----	2	2	9	12
Pueblo.....	44, 200	14	2	0	-----	0	0	23	5
New Mexico:									
Albuquerque.....	(1)	2	0	0	-----	0	0	0	0
Utah:									
Salt Lake City.....	138, 000	50	4	3	-----	1	8	12	3
Nevada:									
Reno.....	(1)	0	0	0	-----	0	0	0	1
PACIFIC									
Washington:									
Seattle.....	363, 200	73	6	0	-----	1	45	-----	-----
Spokane.....	109, 100	20	2	0	2	-----	1	0	-----
Tacoma.....	110, 500	11	3	1	-----	0	0	0	0
Oregon:									
Portland.....	(1)	28	11	7	-----	0	3	4	6
Salem.....	(1)	8	0	2	-----	0	0	7	0
California:									
Los Angeles.....	(1)	29	44	13	18	4	6	7	27
Sacramento.....	75, 700	5	3	5	-----	1	2	8	9
San Francisco.....	585, 300	37	20	4	4	4	163	24	8

Division, State, and city	Scarlet fever		Smallpox			Tuber- culosis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
NEW ENGLAND											
Maine:											
Portland.....	2	5	0	0	0	1	0	0	0	1	28
New Hampshire:											
Concord.....	0	0	0	0	0	0	0	0	0	0	11
Manchester.....	2	0	0	0	0	0	0	0	0	0	11
Vermont:											
Barre.....	0	0	0	0	0	1	0	0	0	0	4
Massachusetts:											
Boston.....	65	69	0	0	0	5	1	0	0	64	211
Fall River.....	3	0	0	0	0	1	0	0	0	2	37
Springfield.....	8	18	0	0	0	2	0	0	0	13	44
Worcester.....	12	6	0	0	0	3	0	0	0	6	59
Rhode Island:											
Pawtucket.....	1	3	0	0	0	2	0	0	0	0	26
Providence.....	8	11	0	0	0	3	0	0	0	13	72
Connecticut:											
Bridgeport.....	9	14	0	0	0	0	0	0	0	0	35
Hartford.....	6	9	0	0	0	2	0	0	0	1	55
New Haven.....	6	3	0	0	0	0	0	0	0	4	31
MIDDLE ATLANTIC											
New York:											
Buffalo.....	25	29	0	0	0	6	1	0	0	12	154
New York.....	197	153	0	0	0	127	12	5	0	81	1, 603
Rochester.....	11	4	0	0	0	4	0	1	0	4	73
Syracuse.....	12	6	0	0	0	0	0	0	0	17	52

¹No estimate of population made.

City reports for week ended December 31, 1929—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
MIDDLE ATLANTIC— continued											
New Jersey:											
Camden.....	6	4	0	0	0	0	0	1	1	0	36
Newark.....	19	13	0	0	0	7	1	0	0	16	131
Trenton.....	3	8	0	0	0	5	0	0	0	0	51
Pennsylvania:											
Philadelphia.....	79	100	0	0	0	25	3	1	0	18	511
Pittsburgh.....	38	45	0	0	0	4	1	0	0	19	166
Reading.....	3	2	0	0	0	0	0	0	0	13	28
EAST NORTH CENTRAL											
Ohio:											
Cincinnati.....	16	30	1	2	0	11	0	0	0	2	156
Cleveland.....	37	56	1	3	0	8	1	1	1	64	170
Columbus.....	11	13	0	5	0	3	0	0	0	10	95
Toledo.....	14	5	0	3	0	7	1	1	0	2	70
Indiana:											
Fort Wayne.....	4	0	0	24	0	0	0	0	0	0	26
Indianapolis.....	11	10	6	6	0	4	0	2	1	5	112
South Bend.....	3	1	1	1	0	0	0	0	0	0	14
Terre Haute.....	3	2	0	0	0	0	0	0	0	0	20
Illinois:											
Chicago.....	116	275	1	2	0	32	4	1	0	68	754
Springfield.....	2	0	0	0	0	0	0	0	0	1	22
Michigan:											
Detroit.....	94	127	1	1	0	29	2	0	0	51	322
Flint.....	12	6	1	2	0	0	2	0	0	2	19
Grand Rapids.....	11	5	0	0	0	1	0	0	0	4	25
Wisconsin:											
Kenosha.....	2	0	0	0	0	1	0	0	0	0	9
Madison.....	2	1	0	0	0	0	0	0	0	33	120
Milwaukee.....	28	27	0	1	0	7	0	1	0	22	13
Racine.....	6	3	0	1	0	0	0	0	0	9	7
Superior.....	2	1	0	0	0	0	0	0	0	4	
WEST NORTH CENTRAL											
Minnesota:											
Duluth.....	10	5	0	0	0	1	0	0	0	0	26
Minneapolis.....	52	12	3	0	0	3	0	0	0	9	110
St. Paul.....	27	9	4	0	0	7	0	2	0	8	61
Iowa:											
Davenport.....	1	0	1	9	—	—	0	0	—	0	—
Des Moines.....	9	4	1	13	—	—	0	0	—	0	30
Sioux City.....	3	0	1	1	—	—	0	0	—	3	—
Waterloo.....	2	2	0	17	—	—	0	0	—	4	—
Missouri:											
Kansas City.....	14	27	1	0	0	3	0	0	0	2	107
St. Joseph.....	3	6	0	2	0	0	0	0	0	0	27
St. Louis.....	37	23	0	2	0	13	2	0	0	7	222
North Dakota:											
Fargo.....	2	1	0	7	0	0	0	0	0	0	10
Grand Forks.....	1	1	0	1	—	—	0	0	—	0	—
Nebraska:											
Omaha.....	6	5	1	1	0	1	0	0	0	0	55
Kansas:											
Topeka.....	2	8	0	1	0	0	0	2	0	0	13
Wichita.....	4	24	0	0	0	3	0	0	0	0	46
SOUTH ATLANTIC											
Delaware:											
Wilmington.....	4	4	0	0	0	1	0	0	0	0	25
Maryland:											
Baltimore.....	26	46	0	0	0	21	3	2	0	23	257
Cumberland.....	1	0	0	0	0	1	0	0	0	0	11
Frederick.....	0	1	0	0	0	0	0	0	0	0	3
District of Colum- bia:											
Washington.....	23	22	0	0	0	9	1	0	0	6	144

Division, State, and city	Scarlet fever		Smallpox			Tuber- culosis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
SOUTH ATLANTIC— continued											
Virginia:											
Lynchburg	0	1	0	0	0	0	0	0	0	23	19
Richmond	6	0	0	0	0	1	1	0	0	4	53
Roanoke	3	2	0	0	0	0	0	0	0	0	11
West Virginia:											
Charleston	2	2	0	0	0	3	0	0	0	2	22
Wheeling	2	4	0	0	0	0	0	0	0	0	23
North Carolina:											
Raleigh	1	2	0	0	0	0	0	0	0	4	11
Wilmington	1	2	0	0	0	0	0	0	0	0	14
Winston-Salem	1	2	0	0	0	0	0	0	0	2	13
South Carolina:											
Charleston	0	5	0	0	0	3	0	0	0	3	27
Columbia	1	0	0	0	0	1	0	0	0	4	15
Georgia:											
Atlanta	4	19	0	0	0	1	0	0	0	2	82
Brunswick	0	0	0	0	0	0	0	0	0	0	6
Savannah	1	9	1	0	0	1	1	0	0	0	36
Florida:											
Miami	2	1	0	0	0	2	0	0	0	0	38
St. Petersburg	0	0	0	0	0	1	0	0	0	0	10
Tampa	1	5	0	0	0	2	0	0	0	0	23
EAST SOUTH CENTRAL											
Kentucky:											
Covington	3	0	0	0	0	0	0	0	0	0	16
Tennessee:											
Memphis	5	2	0	0	0	1	0	0	0	0	64
Nashville	3	0	0	0	0	3	0	0	0	0	54
Alabama:											
Birmingham	4	2	0	1	0	8	1	0	0	1	64
Mobile	1	0	0	0	0	3	0	0	0	0	29
Montgomery	1	3	1	0			0	0		0	
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	0	1	0	0			0	0		0	
Little Rock	2	0	0	1	0	0	0	1	0	0	
Louisiana:											
New Orleans	7	12	0	0	0	13	2	9	0	0	161
Shreveport	1	0	0	0	0	2	0	0	0	0	30
Oklahoma:											
Tulsa	2	3	1	2			0	1		5	
Texas:											
Dallas	6	6	1	1	0	7	1	0	0	0	65
Fort Worth	2	2	1	6	0	1	0	0	0	0	30
Galveston	1	0	0	0	0	2	0	0	0	0	19
Houston	3	4	1	5	0	5	0	0	0	0	92
San Antonio	2	3	0	2	0	11	0	0	0	0	87
MOUNTAIN											
Montana:											
Billings	1	4	0	0	0	0	0	0	1	0	3
Great Falls	2	35	0	0	0	1	0	1	0	0	11
Helena	1	0									

City reports for week ended December 31, 1929—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths re-ported	Typhoid fever			Whoop- ing cough, cases re-ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
PACIFIC											
Washington:											
Seattle.....	8	10	2	0	-----	-----	0	0	-----	8	-----
Spokane.....	8	2	3	30	-----	-----	0	0	-----	0	-----
Tacoma.....	3	3	3	11	0	0	0	0	0	0	16
Oregon:											
Portland.....	7	4	8	4	0	0	0	0	0	1	58
Salem.....	0	0	0	0	-----	-----	0	0	-----	17	0
California:											
Los Angeles....	28	45	3	0	0	25	2	1	0	25	308
Sacramento....	2	6	0	4	0	2	0	0	0	0	35
San Francisco..	16	35	1	2	0	12	1	0	0	2	156
Division, State, and city	Meningococcus meningitis		Lethargic en- cephalitis		Pellagra		Poliomyelitis (infantile paralysis)				
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, esti- mated expect- ancy	Cases	Deaths		
NEW ENGLAND											
Massachusetts.											
Boston.....	0	0	2	0	0	0	0	0	1	0	0
Springfield....	0	1	1	0	0	0	0	0	0	0	0
Connecticut:											
Hartford.....	0	1	0	0	0	0	0	0	1	0	0
New Haven.....	0	1	0	0	0	0	0	0	0	0	0
MIDDLE ATLANTIC											
New York:											
New York.....	15	6	4	2	0	0	1	0		1	
New Jersey:											
Camden.....	0	0	0	1	0	0	0	0	0	0	0
Newark.....	2	1	0	0	0	0	0	0	1	0	0
Pennsylvania:											
Philadelphia....	3	3	2	1	1	1	0	3	0	0	0
Pittsburgh.....	2	1	0	0	0	0	0	0	0	0	0
EAST NORTH CENTRAL											
Ohio:											
Cincinnati.....	2	1	0	0	0	0	0	1	0	0	0
Cleveland.....	3	1	0	0	0	0	0	0	0	0	0
Toledo.....	1	0	0	0	0	0	0	0	0	0	0
Indiana:											
Indianapolis....	15	4	0	0	0	0	0	0	0	0	0
Illinois:											
Chicago.....	7	2	0	0	0	0	0	0	0	0	0
Michigan:											
Detroit.....	18	7	2	0	0	0	0	1	0	0	0
Wisconsin:											
Milwaukee.....	2	2	0	0	0	0	0	0	0	0	0
WEST NORTH CENTRAL											
Iowa:											
Davenport.....	1	0	0	0	0	0	0	0	0	0	0
Missouri:											
Kansas City....	2	1	0	0	0	0	0	0	0	0	0
St. Joseph.....	1	0	0	0	0	0	0	0	0	0	0
St. Louis.....	5	2	0	0	0	0	0	0	0	0	0

City reports for week ended December 21, 1929—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
SOUTH ATLANTIC ¹									
Maryland:									
Baltimore.....	1	1	0	0	0	0	0	0	0
North Carolina:									
Raleigh.....	0	0	0	0	1	0	0	0	0
Winston-Salem.....	0	0	0	0	2	0	0	0	0
South Carolina:									
Charleston ¹	0	0	0	0	1	0	0	0	0
Columbia.....	0	1	0	0	0	1	0	0	0
Georgia:									
Atlanta.....	3	3	0	0	1	1	0	0	0
Savannah ²	0	0	0	0	0	1	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis.....	1	0	0	0	0	0	0	0	0
Nashville.....	2	0	0	0	0	0	0	0	0
Alabama:									
Birmingham.....	0	0	0	0	1	0	0	0	0
Mobile.....	0	0	0	0	0	1	0	0	0
WEST SOUTH CENTRAL									
Louisiana:									
New Orleans.....	6	4	0	0	2	0	0	0	0
Shreveport.....	0	1	0	0	0	0	0	0	0
Texas:									
Dallas.....	1	1	0	0	0	0	0	0	0
Fort Worth.....	0	0	0	0	0	2	0	0	0
MOUNTAIN									
Colorado:									
Denver.....	1	1	0	0	0	0	0	0	0
Utah:									
Salt Lake City.....	3	2	0	0	0	0	0	0	0
PACIFIC									
California:									
Los Angeles.....	3	3	0	0	0	0	0	0	0
San Francisco.....	2	3	0	0	0	0	0	0	0

¹ Dengue: 1 case at Charleston, S. C.² Typhus fever, 2 cases: 1 case at Savannah, Ga., and 1 case at Tampa, Fla.

The following table gives the rates per 100,000 population for 98 cities for the 5-week period ended December 21, 1929, compared with those for a like period ended December 22, 1928. The population figures used in computing the rates are approximate estimates, authoritative figures for many of the cities not being available. The 98 cities reporting cases have an estimated aggregate population of more than 31,000,000. The 91 cities reporting deaths have nearly 30,000,000 estimated population. The number of cities included in each group and the estimated aggregate populations are shown in a separate table below.

Summary of weekly reports from cities, November 17 to December 21, 1929—Annual rates per 100,000 population, compared with rates for the corresponding period of 1928¹

DIPHTHERIA CASE RATES

	Week ended—									
	Nov. 23, 1929	Nov. 24, 1928	Nov. 30, 1929	Dec. 1, 1928	Dec. 7, 1929	Dec. 8, 1928	Dec. 14, 1929	Dec. 15, 1928	Dec. 21, 1929	Dec. 22, 1928
98 cities.....	² 186	165	140	152	³ 148	166	⁴ 135	159	129	146
New England.....	118	140	179	195	113	209	⁵ 126	216	170	159
Middle Atlantic.....	123	137	123	131	110	159	112	139	106	146
East North Central.....	301	182	166	185	191	190	170	208	167	166
West North Central.....	169	186	113	164	⁶ 122	149	⁷ 157	149	110	139
South Atlantic.....	135	230	144	128	⁸ 118	143	107	130	107	122
East South Central.....	238	147	156	175	224	140	136	98	122	133
West South Central.....	462	272	269	223	376	259	304	251	233	191
Mountain.....	⁹ 89	124	17	53	⁹ 136	35	¹⁰ 62	18	61	71
Pacific.....	62	105	57	72	¹¹ 111	100	60	61	57	95

MEASLES CASE RATES

	² 72	110	74	116	³ 99	148	⁴ 114	183	110	179
98 cities.....										
New England.....	57	582	70	605	81	736	⁵ 94	837	93	800
Middle Atlantic.....	34	59	33	46	54	46	47	91	59	68
East North Central.....	94	105	101	132	93	187	133	194	94	251
West North Central.....	81	102	100	66	⁶ 218	194	⁷ 208	272	210	225
South Atlantic.....	24	65	22	69	⁸ 4	55	28	88	39	62
East South Central.....	14	7	0	0	14	14	14	0	0	28
West South Central.....	28	4	40	16	47	41	63	12	138	12
Mountain.....	⁹ 107	239	131	230	⁹ 57	186	¹⁰ 98	257	139	204
Pacific.....	289	15	257	72	¹¹ 505	43	479	64	431	49

SCARLET FEVER CASE RATES

	² 219	176	213	173	³ 253	201	⁴ 279	203	250	184
98 cities.....										
New England.....	251	212	260	186	278	237	⁵ 395	251	312	241
Middle Atlantic.....	127	109	116	102	148	142	172	143	176	145
East North Central.....	347	227	360	237	409	259	438	290	354	233
West North Central.....	223	284	183	221	⁶ 229	264	⁷ 279	252	235	241
South Atlantic.....	103	147	139	145	⁸ 145	176	193	163	253	166
East South Central.....	156	274	136	161	143	259	88	168	48	154
West South Central.....	162	146	123	186	162	219	142	174	103	101
Mountain.....	⁹ 267	106	348	115	⁹ 421	80	¹⁰ 302	62	583	27
Pacific.....	269	194	274	261	¹¹ 416	197	352	182	252	197

SMALLPOX CASE RATES

	² 24	7	14	6	³ 17	4	⁴ 23	8	23	8
98 cities.....										
New England.....	0	0	0	5	0	2	⁵ 2	0	0	2
Middle Atlantic.....	0	0	0	0	0	0	0	0	0	0
East North Central.....	33	21	13	12	26	10	29	16	31	4
West North Central.....	50	2	48	8	⁶ 64	2	⁷ 57	0	60	6
South Atlantic.....	2	0	0	6	⁸ 0	0	0	2	0	0
East South Central.....	0	14	0	0	0	28	0	7	0	0
West South Central.....	40	8	12	12	20	4	36	24	36	41
Mountain.....	⁹ 71	0	35	35	⁹ 102	0	¹⁰ 27	44	62	44
Pacific.....	115	18	77	8	¹¹ 36	8	122	20	117	66

¹ The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1929, and 1928, respectively.

² Reno, Nev., not included.

³ Fargo, N. Dak., Atlanta, Ga., Salt Lake City, Utah, and Seattle and Spokane, Wash., not included.

⁴ New Haven, Conn., Sioux City, Iowa, and Missoula, Mont., not included.

⁵ New Haven, Conn., not included.

⁶ Fargo, N. Dak., not included.

⁷ Sioux City, Iowa, not included.

⁸ Atlanta, Ga., not included.

⁹ Salt Lake City, Utah, not included.

¹⁰ Missoula, Mont., not included.

¹¹ Seattle and Spokane, Wash., not included.

Summary of weekly reports from cities, November 17 to December 21, 1929—Annual rates per 100,000 population, compared with rates for the corresponding period of 1928—Continued.

TYPHOID FEVER CASE RATES

	Week ended—									
	Nov. 23, 1929	Nov. 24, 1928	Nov. 30, 1929	Dec. 1, 1928	Dec. 7, 1929	Dec. 8, 1928	Dec. 14, 1929	Dec. 15, 1928	Dec. 21, 1929	Dec. 22, 1928
96 cities.....	¹ 13	10	5	6	¹ 5	8	¹ 6	5	5	4
New England.....	11	7	2	5	2	5	¹ 7	7	0	2
Middle Atlantic.....	10	9	2	7	4	7	6	4	4	1
East North Central.....	9	5	5	5	4	7	3	1	3	1
West North Central.....	12	16	6	8	¹ 2	4	¹ 6	4	8	2
South Atlantic.....	10	11	4	10	¹ 6	8	7	6	4	8
East South Central.....	34	35	34	0	48	14	14	21	0	7
West South Central.....	36	12	16	16	0	49	8	16	40	8
Mountain.....	¹ 36	9	26	9	¹ 34	0	¹ 9	9	17	9
Pacific.....	5	13	2	3	¹ 10	5	7	8	2	10

INFLUENZA DEATH RATES

	¹ 8	17	11	34	¹ 16	50	¹ 16	80	19	118
91 cities.....										
New England.....	5	9	5	9	11	9	¹ 7	9	9	14
Middle Atlantic.....	9	15	5	10	14	17	9	27	18	66
East North Central.....	6	3	10	14	9	18	15	44	14	124
West North Central.....	6	9	21	18	¹ 27	94	12	174	15	230
South Atlantic.....	4	13	17	31	¹ 25	64	19	101	13	134
East South Central.....	30	31	15	31	50	84	59	100	52	77
West South Central.....	16	33	57	54	49	54	81	96	69	212
Mountain.....	¹ 9	44	17	310	¹ 11	514	¹ 0	735	26	594
Pacific.....	7	94	13	239	13	293	20	317	30	212

PNEUMONIA DEATH RATES

	¹ 103	126	107	139	¹ 127	161	¹ 151	202	159	250
91 cities.....										
New England.....	88	106	93	85	75	80	¹ 131	108	158	159
Middle Atlantic.....	108	128	101	142	139	149	156	190	165	247
East North Central.....	96	100	83	120	126	135	115	171	117	255
West North Central.....	102	104	126	150	¹ 125	190	174	316	180	444
South Atlantic.....	94	195	129	145	¹ 132	170	191	251	184	228
East South Central.....	252	169	222	184	237	306	215	199	215	207
West South Central.....	134	129	162	141	248	179	239	182	243	254
Mountain.....	¹ 107	159	157	186	¹ 159	337	¹ 196	629	235	399
Pacific.....	59	169	108	239	144	293	111	222	144	169

¹ Reno, Nev., not included.

² Fargo, N. Dak., Atlanta, Ga., Salt Lake City, Utah, and Seattle and Spokane, Wash., not included.

³ New Haven, Conn., Sioux City, Iowa, and Missoula, Mont., not included.

⁴ New Haven, Conn., not included.

⁵ Fargo, N. Dak., not included.

⁶ Sioux City, Iowa, not included.

⁷ Atlanta, Ga., not included.

⁸ Salt Lake City, Utah, not included.

⁹ Missoula, Mont., not included.

¹⁰ Seattle and Spokane, Wash., not included.

¹¹ Fargo, N. Dak., Atlanta, Ga., and Salt Lake City Utah, not included.

¹² New Haven, Conn., and Missoula, Mont., not included.

Number of cities included in summary of weekly reports and aggregate population of cities of each group approximated as of July 1, 1929 and 1928, respectively

Groups of cities	Number of cities reporting cases	Number of cities reporting deaths	Aggregate population of cities reporting cases		Aggregate population of cities reporting deaths	
			1929	1928	1929	1928
Total.....	98	91	31,568,400	31,052,700	29,995,100	29,498,600
New England.....	12	12	2,305,100	2,273,900	2,305,100	2,273,900
Middle Atlantic.....	10	10	10,809,700	10,702,200	10,809,700	10,702,200
East North Central.....	16	16	8,181,900	8,001,300	8,181,900	8,001,300
West North Central.....	12	9	2,712,100	2,673,300	1,736,900	1,708,100
South Atlantic.....	19	19	2,783,300	2,732,900	2,783,300	2,732,900
East South Central.....	6	5	767,900	745,500	704,200	682,400
West South Central.....	8	7	1,319,100	1,289,900	1,285,000	1,256,400
Mountain.....	9	9	598,800	590,200	598,800	590,200
Pacific.....	6	4	2,090,600	2,043,500	1,590,300	1,551,200

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Week ended December 14, 1929.—The Department of Pensions and National Health of Canada reports cases of certain communicable diseases in Canada for the week ended December 14, 1929, as follows:

Provinces	Cerebro-spinal fever	Influenza	Poliomy-elitis	Smallpox	Typhoid fever
Prince Edward Island ¹					
Nova Scotia.....		11			
New Brunswick ¹					
Quebec.....					8
Ontario.....	1	1	1	18	12
Manitoba.....				6	
Saskatchewan.....				16	
Alberta.....	1		1	7	1
British Columbia.....	1			1	10
Total.....	3	12	2	42	31

¹ No case of any disease reported in the table was reported during the week.

Quebec Province—Communicable diseases—Week ended December 21, 1929.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended December 21, 1929, as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis.....	1	Poliomyelitis.....	1
Chicken pox.....	120	Scarlet fever.....	115
Diphtheria.....	49	Smallpox.....	8
German measles.....	7	Tuberculosis.....	23
Influenza.....	3	Typhoid fever.....	7
Measles.....	159	Whooping cough.....	68
Mumps.....	87		

NETHERLANDS

Smallpox (alastrim)—Week ended December 7, 1929.—During the week ended December 7, 1929, 5 cases of smallpox (alastrim) were reported at Rotterdam, Netherlands, 1 at The Hague, and 1 at Hillegersberg.

PORTO RICO

San Juan—Communicable diseases—Five weeks ended December 7, 1929.—During the five weeks ended December 7, 1929, cases of certain communicable diseases were reported in San Juan, P. R., as follows:

Disease	Cases	Disease	Cases
Chicken pox.....	1	Syphilis.....	12
Diphtheria.....	5	Tetanus.....	2
Filariasis.....	5	Tuberculosis.....	62
Malaria.....	13	Typhoid fever.....	3
Ophthalmia neonatorum.....	2	Whooping cough.....	3

TRINIDAD (BRITISH WEST INDIES)

Port of Spain—Vital statistics (comparative)—November, 1929.—The following statistics for the month of November for the years 1925 to 1929 are taken from a report issued by the Public Health Department of Port of Spain, Trinidad:

	1925	1926	1927	1928	1929
Number of births.....	146	176	186	171	182
Birth rate per 1,000 population.....	27.8	33.2	34.8	31.8	33.4
Number of deaths.....	132	126	118	103	94
Death rate per 1,000 population.....	25.1	23.7	22.1	19.2	17.2
Deaths under 1 year.....	25	24	17	17	9
Infant mortality rate per 1,000 births.....	171.2	136.4	91.4	99.4	49.4

YUGOSLAVIA

Communicable diseases—November, 1929.—During the month of November, 1929, certain communicable diseases were reported in Yugoslavia, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax.....	69	13	Relapsing fever.....	1	-----
Cerebrospinal meningitis.....	10	6	Scarlet fever.....	1,887	265
Diphtheria and croup.....	861	111	Tetanus.....	15	10
Dysentery.....	202	32	Typhoid fever.....	883	84
Measles.....	606	3	Typhus fever.....	3	-----
Pollomyelitis.....	1	1			

Tuticorin.....	C	34	6	—	—	—	—	—	—	2	1	6	10	2	2	1	1	7	9
Vizagapatnam.....	D	30	1	—	—	—	—	—	—	—	—	—	5	1	1	—	4	1	
India (French):.....	D	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Chandernagor.....	C	3	2	1	—	—	—	—	—	—	—	1	—	3	1	1	—	—	
Karikal.....	C	3	2	1	—	—	—	—	—	—	—	—	—	1	1	2	—	—	
Pondicherry Province.....	C	3	—	—	—	—	—	—	—	—	—	—	3	—	—	—	2	—	
India (Portuguese).....	C	3	—	—	—	—	—	—	—	—	—	—	3	1	—	—	2	—	
Indo-China (see also table below):.....	D	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Frampeuh.....	C	11	7	3	3	2	—	—	—	—	—	—	—	—	—	—	—	—	
Saigon and Cholon.....	C	4	5	3	2	—	—	—	—	5	5	16	35	28	8	7	1	2	
Frampeuh.....	C	188	9	2	—	—	—	—	—	5	5	11	27	20	4	4	1	2	
Saigon and Cholon.....	C	139	14	2	—	—	—	—	—	—	—	—	—	1	—	—	1	1	
Japan.....	C	—	—	—	—	—	—	—	—	29	5	—	—	—	—	—	—	—	
Kobe.....	C	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Osaka.....	C	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Shimonoseki.....	C	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Siam.....	C	469	371	180	26	6	—	—	—	1	—	2	—	—	—	—	—	—	
Siam.....	C	285	202	112	19	4	—	—	—	—	—	—	—	—	—	—	—	—	
Anthoang.....	C	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Ayudhaya.....	C	25	18	4	3	—	—	—	—	—	—	—	—	—	—	—	—	—	
Bangkok.....	C	11	11	7	—	—	—	—	—	—	—	1	1	—	—	—	—	—	
Dhannapuri.....	C	3	1	3	—	—	—	—	—	1	1	—	—	—	—	2	3	1	
Lobpur.....	C	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Nagara Rajima.....	C	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Snuud Songram.....	C	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Sridharmaraj Province.....	C	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
On vessel:	D	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
S. S. Angby, at Saigon-Cholon.....	C	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
S. S. Cap. St. Jacques, at Singapore, from Saigon-Cholon.....	D	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
S. S. Shinsai, at Shanghai.....	C	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
S. S. Tokushima, at Hong Kong.....	C	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
S. S. Texas Maru, at Nagasaki, from Shanghai.....	C	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	

1 There were 98 cases of cholera with 16 deaths in Nagara Sridharmaraj Province, Siam, from May 16 to July 7, 1929.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE--Continued

[C indicates cases; D, deaths; P, present]

Place	June 2-23, 1929	June 30-July 27, 1929	July Aug. 23-27, 1929	Aug. 28-Sept. 21, 1929	Week ended—												
					October, 1929				November, 1929				December, 1929				
					Sept. 28, 1929	5	12	19	26	2	9	16	23	30	7	14	21
Egypt—Continued.																	
Minian	2	7	1	2	1												
Port Said	1	2	6	3	1												
Suez		1															
France: Paris					1												
Greece (see also table below):																	
Messinia																	
Patras					3												
Piræus					3												
Pyrgos																	
Hawaii: Hamakua—Plague-infected rats	1																
India	677	1,812	4,221	6,326	2,135	3	1,983	1,633	2,263	2,291							
	414	1,069	2,266	3,354	1,081		1,104	921	1,289	1,132							
Basseln		4	1	4	4		1										
Bombay		4		1	2		1										
			35	23	10		7	8	10	6							
Plague-infected rats.			97	125	186		46	42	13	11							
Madras Presidency			52	112	107		22	20	8	2							
			24	15	11		1	1	1	1							
Rangoon			9	18	12		1	1	1	1							
			6	9	10		2	1	1	3							
Plague-infected rats.				15	15												
Indo-China (see also table below):																	
Pnompenh			7	8	4		1			1							
			8	8	4		1			1							
Salgon and Cholon			1	4	1		1			1							
Iraq:																	
Baghdad	12	1	2				1	1	2	1							
	2	1					1	1	1	1							
Diyalah Liwa	1	1					1	1	1	1							
Neudham	1	1					1	1	1	1							

[illegible]

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE—Continued

[C indicates cases; D, deaths; P, present]

Place	June, 1929	July, 1929	August, 1929	September, 1929	October, ber, 1929	No. ven- ber, 1929	Place	June, 1929	July, 1929	August, 1929	September, 1929	October, ber, 1929	No. ven- ber, 1929
British East Africa (see also table above):							Madagascar (see also table above)—Contd.						
Kenya.....	69	67	19	28	64		Tamstave Province.....				7		
Uganda.....	1,215	1,203					Tananarive Province.....	11	16	36	141		
Ecuador: Guayaquil.....	932	973	6	7	12		Peru.....	11	16	34	135		
Plague-infected rats.....			1	3	4		Senegal:	16	11				
Greece (see also table above).....	1		2	8	5		Baol ¹	8	3				
India-China (see also table above).....		3	1	2	2		Dakar ¹	43	22	32	42	45	22
Madagascar (see also table above):		37	48	186			Louga ¹	18	9	13	24	13	16
Ambositra Province.....		19	46	182			Rufisque ¹	67	62	76	25	3	11
Antsirabe Province.....		18	6	6			Thies ¹	45	45	65	17	2	2
Majunga Province.....		2	1	13			Tiavaouane ¹	59	121	108	41		1
Moramanga Province.....		2	2	13				39	70	64	24	1	
								22					
								10	61	52	24	3	
								6	24	32	28	3	
								93	161	188	119	41	8
								50	90	119	55	21	4

¹ Incomplete reports.

[illegible]

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

(C indicates cases; D, deaths; P, present)

Place	Week ended—															
	June 2-29, 1929	June 30- 29, July 27, 1929	July 28- Aug. 24, 1929	Aug. 25- Sept. 21, 1929	October, 1929					November, 1929					December, 1929	
					5	12	19	26	2	9	16	23	30	7	14	
India (French):																
Karikal.....	5	1	12	14		2		2		2	1					
Pondicherry Province.....	6	1	2	13						2						
India (Portuguese)	18	21	12	8	3		2	3	2	2	12				1	
Indo-China (see also table below):	15	16	7		3			3	2	2	9	1	1		1	
Pnompenh.....	9	4		1	1											
Saloon and Choloon.....	8	9	3	1	1					1	1					
Iraq:	2	3	3	1												
Baghdad.....	1	1														
Basra.....	9	1						8		1	1	3	2	2	6	10
Diyah Liwa.....	1							2				1	2	1	4	
Kirkuk Liwa.....		8	13	4												
Mossool.....		2	12													
Ivory Coast (see table below).				21	16											
Jamaica (outside Kingston) (alastrim):																
Japan:																
Niigata.....	20	12	81	68				24	75	52	11	14	20	8	19	1
Tokyo.....			13	17				6	33	28	26	12	6	1	10	
Macao.....		7														
Mexico (see also table below).																
Acapulco.....	2															
Aguaesalientes.....	2	3	4	1												
Cochulla.....	17	11	7	6												
Salco (State): Guadalupe.....	11	6	5	8	2											

CHOLEKA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place	May, 1929	June, 1929	July, 1929	August, 1929	September, 1929			October, 1929			November, 1929			December, 1929	
					1-10	11-20	21-30	1-10	11-20	21-31	1-10	11-20	21-30	1-10	11-20
Dahomey.....	C							4					19		
Indo-China (see also table above).....	C	410		159	263			81		47		245			
Ivory Coast.....	C			22	2										
Senegal.....	C	1													
Sudan (French).....	C	2	57	15		2									
Sudan.....	C		15												
Syria: Beirut.....	D	12	36	27	29	4	13	20	16	11	22	23	16	10	9
	D									1		6			

Place	June, 1929	July, 1929	August, 1929	September, 1929	October, 1929	November, 1929	December, 1929		
							1-10	11-20	21-31
British East Africa (see also table above):									
Kenya.....	C	45							
Chosen.....	C		60	66					
	C		1	1					
France.....	D		1						
Greece.....	C	15							
	C	2							

Place	June, 1929	July, 1929	August, 1929	September, 1929	October, 1929	November, 1929	December, 1929
Mexico: Durango (see also table above).....							
Morocco.....							
Persia.....							
Turkey.....							

TYPHUS FEVER

Place	May 5- June 1, 1929	June 2-28, 1929	June 29-July 27, 1929	July 28- Aug. 24, 1929	Aug. 25- Sept. 21, 1929	Week ended—											
						Sept. 22, 1929				October, 1929				November, 1929			
						5	12	19	26	2	9	16	23	30	Dec. 7, 1929		
Algeria:																	
Alger:	1	1	9	4	4												
Constantine Department		11		2													
Oran	14	5	9	2	3												
Bolivia: Potosi Province—Calacoto Canton				19	5												
Brazil: Sao Paulo. ¹																	
British South Africa: Northern Rhodesia	3																
Bulgaria	21	4	12		14												
	1	1	2														
Sofia			1														
Chile:																	
Concepcion	1																
Valparaiso			1														
China: Tientsin				1													
Chosen (see table below)																	
Czechoslovakia (see table below)																	
Egypt:																	
Alexandria																	
	1				1	1	1										
Beheira Province																	
	1	13	8	31	6	9	3		4	2							
	159	24	6	2	2	2			2	1							
Cairo	2		2	4	3												
					1												
Port Said		2	4	3													
Suez	2			2					1	1							
Greece (see table below)																	
Hungary																	
Ireland	1																
Ireland (Irish Free State):																	
Cavan County—Carrickmacross																	
Donegal County—Stranorlar	1																
Tyrone County—Stranorlar		1															
Latvia (see table below)																	
Lithuania (see table below)																	

¹ Press reports show that 10 deaths from typhus fever have occurred in Sao Paulo, Brazil, from Nov. 3 to 30, 1929.
² During the period from Apr. 14 to May 21, 1929, 18 cases of typhus fever with 4 deaths were reported in Strabane, Tyrone County, Ireland.

Place	May, 1929	June, 1929	July, 1929	August, 1929	September, 1929	October, 1929	Place	May, 1929	June, 1929	July, 1929	August, 1929	September, 1929	October, 1929
Canada: Ontario.....	C	1					Lithuania.....	63	27	10	7	3	6
Chosen.....	272						Peru: Arequipa.....	5	4	1	1	1	1
Seoul.....	15						Turkey.....	7	10	3	3	4	10
Czechoslovakia.....	C	2	2		1		Yugoslavia.....	1	3	3	7	1	-1
Greece: Athens.....	C	1						C	19				
Latvia.....	C	3		6	3	7		D	1	1	2		
		5		1									

YELLOW FEVER

Place	Week ended—												
	October, 1929				November, 1929				December, 1929				
	Sept. 28, 1929	5	12	19	26	2	9	16	23	30	7	14	21
Brazil:													
Bahia.....													
Niteroy.....	1												
Para.....	1												
Rio de Janeiro.....	0	2	0	0	0	0	0	0	0	0	0	0	0
Colombia:													
Simacota.....													
Socorro I.....	4												
Gold Coast.....	12												
Liberia: Monrovia.....	4	4											1
	3	1											

From June 10 to July 8, 1929, 41 cases of yellow fever with 23 deaths were reported in Socorro, Colombia.

X

PUBLIC HEALTH REPORTS

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NO. 3

SICKNESS AMONG INDUSTRIAL EMPLOYEES

FREQUENCY OF DISABILITY LASTING LONGER THAN ONE WEEK FROM IMPORTANT CAUSES AMONG 163,000 PERSONS IN INDUSTRY IN 1928, AND A SUMMARY OF THE MORBIDITY EXPERIENCE FROM 1920 TO 1928¹

By DEAN K. BRUNDAGE, *Associate Statistician, United States Public Health Service*

The average frequency of cases of disability lasting more than one week among members of a group of about 35 industrial sick-benefit associations and company relief departments reporting periodically to the United States Public Health Service is presented for the year 1928 in comparison with each of the preceding seven years.²

As pointed out in previous reports, the rates presented are probably understatements of the frequency of cases of sickness and nonindustrial injuries which render employees unable to work for eight consecutive days or longer, because benefits are usually refused for disability on account of the venereal diseases, for illness resulting from the violation of any civil law, for the results of willful or gross negligence, and for certain other causes. Some of the associations do not pay benefits for chronic diseases contracted prior to the date of joining the organization nor for disabilities caused by or growing out of specific physical defects, and instances have been found of patient's failure to report his case on account of ignorance that cash benefits were due, as well as situations in which the employee was too sick to arrange for the reporting of his illness within the time limit set by the organization. On the other hand, a few cases of malingering may be included in the records. It appears, therefore, that the results probably do not seriously understate the real incidence of disability lasting eight days or longer.

With but few exceptions the reporting establishments are located east of the Mississippi and north of the Ohio and Potomac Rivers. None of the reports include industrial accidents. In calculating the sickness and nonindustrial accident frequency rates, the number of

¹ From the Office of Industrial Hygiene and Sanitation in cooperation with the Office of Statistical Investigations, U. S. Public Health Service.

² Several articles on the frequency of disabling illness as shown by these data have been published in the Public Health Reports. The effect upon the sickness rate of certain factors such as age and sex which are not discussed in the present report may be found in Reprint No. 1206 from the Public Health Reports of Feb. 22, 1929.

persons used as the divisor is the average number of employees reported as holding membership in the association or company relief department.

**RELATIVE IMPORTANCE OF DIFFERENT GROUPS OF DISEASES FROM
THE STANDPOINT OF THE FREQUENCY OF THEIR OCCURRENCE**

The relative importance of each of 10 groups of disabilities for which sick benefits were paid during the seven years ending December 31, 1927, was not changed by the addition of the data for the year

**RELATIVE FREQUENCY OF CLAIMS FOR SICK-BENEFITS ON
ACCOUNT OF SPECIFIED GROUPS OF DISEASES
AMONG MALE INDUSTRIAL EMPLOYEES,
1921-1928.**

9.8%	External Causes (165-203)*
42.4%	Respiratory Diseases (11, 31, 97-107, 109)
13.5%	Digestive Diseases (108, 110-127)
6.9%	Circulatory and Genito-Urinary Diseases (87-96, 128-136)
5.8%	Rheumatism (51, 52)
4.4%	Diseases of Nervous System (70-84)
3.8%	Diseases of the Skin (151-154)
5.3%	Diseases of Organs of Locomotion (158)
2.6%	Epidemic and Endemic Diseases (1-10, 12-25)
7.5%	All Other Diseases

* Numbers in parentheses are disease title numbers in the International List of Causes of Death, 3rd. revision, Paris, 1920.

FIGURE 1

1928. However, in several instances the percentages were different from those shown in last year's report, and it seemed worth while to present the 8-year record. During these years the claims for sickness

benefits on account of respiratory diseases constituted 42.4 per cent of total claims; for digestive diseases, 13.5 per cent; and for external causes (nonindustrial injuries), 9.8 per cent. These three groups added together, therefore, accounted for nearly two-thirds of the cases for which sick benefits were paid by associations reporting to the Public Health Service.

The sickness incidence or frequency rates from which were computed the percentages shown in Figure 1 appear in Tables 1 to 3. In the respiratory group of diseases the importance of influenza is indicated in Table 2 from the fact that one-half of the respiratory cases, 1921 to 1928, were reported as influenza or grippe. In 1928 this percentage was even larger, 57.5 per cent of the respiratory cases being diagnosed as influenza or grippe.

The digestive diseases were the second most important group from the standpoint of the frequency of their occurrence, followed by external causes (nonindustrial injuries).

The morbidity records are given in some detail in Tables 1 to 3, so that any sick-benefit organization with a waiting period of one week may compare its sickness frequency with the yearly rates presented, if it classifies in accordance with the International List of the Causes of Death (1920 revision) the disabilities among its male members which lasted eight consecutive days or longer, and then divides the number of cases of each specified disease group by the average male membership during the year.

TABLE 1.—*Frequency of specified disease groups which caused disability for eight consecutive calendar days or longer in a group of male industrial workers employed in different industries, by years, from 1921 to 1928*

Year	Average male membership of the reporting companies	Sickness and nonindustrial injuries ¹		Nonindustrial injuries ²		Sickness		Respiratory diseases ³		Nonrespiratory diseases	
		Number of cases per 1,000 men	Number of cases	Number of cases per 1,000 men	Number of cases	Number of cases per 1,000 men	Number of cases	Number of cases per 1,000 men	Number of cases	Number of cases per 1,000 men	Number of cases
1921-1928	899,064	103.5	93,064	10.2	9,202	93.3	83,862	43.9	39,484	49.4	44,378
1921	66,084	90.9	6,004	8.1	530	82.8	5,465	34.1	2,251	48.7	3,214
1922	66,466	96.4	6,407	7.8	513	88.6	5,889	44.0	2,918	44.6	2,971
1923	89,910	95.1	8,548	9.0	803	86.1	7,740	44.3	3,978	41.8	3,762
1924	114,065	96.0	10,948	9.6	1,093	86.4	9,855	38.2	4,349	48.2	5,506
1925	114,631	105.9	12,140	10.9	1,248	95.0	10,892	44.1	5,062	50.9	5,830
1926	118,886	111.9	13,307	11.2	1,325	100.7	11,982	50.4	5,991	50.3	5,991
1927	165,465	103.7	17,162	11.4	1,896	92.3	15,266	40.2	6,652	52.1	8,614
1928	163,557	113.4	18,548	10.9	1,775	102.5	16,773	50.6	8,283	51.9	8,490

¹ Industrial accidents and certain diseases are not reported as explained in the text.

² External causes—title numbers 165 to 203 in the International List of the Causes of Death, 3d revision, 1920.

³ Title numbers 11, 31, 97 to 107, and 109 in the International List of the Causes of Death, 1920.

⁴ Number of years of life under observation.

TABLE 2.—Frequency of specified respiratory diseases which caused disability for eight consecutive calendar days or longer in a group of male industrial workers employed in different industries, by years, from 1921 to 1928

Year	Number of cases per 1,000 men						
	Respira- tory diseases	Influenza and grippe (11)	Tuber- culosis of the respi- ratory system (31)	Bronchi- tis (90)	Pneu- monia, all forms (100, 101)	Diseases of pharyn- x and tonsils (109)	Other diseases of respira- tory sys- tem (97, 98, 102- 107)
Average 1921-1928.....	43.9	21.8	1.4	5.7	3.3	6.3	5.4
1921.....	34.1	12.9	1.0	5.8	2.6	5.9	5.0
1922.....	44.0	20.9	1.9	5.4	3.8	5.3	6.7
1923.....	44.3	22.7	1.2	5.3	3.8	5.7	5.6
1924.....	38.2	16.9	1.3	5.0	3.1	6.4	5.5
1925.....	44.1	21.3	1.2	5.7	3.5	7.0	5.4
1926.....	50.4	27.1	1.6	6.6	3.1	7.1	4.9
1927.....	40.2	17.7	1.6	6.0	3.3	6.4	5.2
1928.....	50.6	29.1	1.1	5.7	3.4	5.9	5.4

TABLE 3.—Frequency of specified nonrespiratory disease groups which caused disability for eight consecutive calendar days or longer in a group of male industrial workers employed in different industries, by years, from 1921 to 1928

Year	Number of cases per 1,000 men								
	Digestive diseases						Nonrespiratory, non digestive		
	Digestive diseases, total	Diseases of the stom- ach ¹ (111, 112)	Diarrhea and enteri- tis (114)	Appendi- citis (117)	Hernia (118a)	Other digestive diseases (108, 110, 115, 116, 118-127)	Nonrespira- tory, non- digestive, total	Circula- tory and genito- urinary, total	Diseases of the heart (97-99)
Average 1921-1928.....	14.0	4.7	1.6	3.7	1.6	2.4	35.4	7.1	1.8
1921.....	13.9	4.2	2.2	3.3	2.1	2.1	34.8	6.6	1.6
1922.....	12.2	4.1	1.8	2.9	1.5	1.9	32.4	6.4	1.3
1923.....	11.4	3.9	1.8	2.9	1.2	1.6	30.4	5.4	1.2
1924.....	13.3	4.6	1.9	3.3	1.3	2.2	34.9	6.3	1.5
1925.....	14.8	5.2	1.8	3.9	1.4	2.5	36.1	7.1	1.7
1926.....	14.5	5.2	1.6	3.6	1.6	2.6	35.8	7.2	1.9
1927.....	15.1	5.0	1.4	4.5	1.6	2.6	37.0	7.7	2.1
1928.....	14.0	4.7	1.3	4.2	1.8	2.6	37.3	8.1	2.1

Year	Nonrespiratory, nondigestive diseases							
	Diseases of the veins (93)	Other diseases of the circula- tory system (91, 92, 94-96)	Nephritis, acute and chronic (128, 129)	Other diseases of genito- urinary system (130- 136)	Diseases of the nervous system, total (70-84)	Neuralgia, neuritis, sciatica (82)	Neurasthenia and the like (part of 84)	Other diseases of the nervous system (70-81, 83, part of 84)
Average, 1921-1928.....	1.5	1.0	0.8	2.0	4.5	2.1	1.5	0.9
1921.....	1.7	.8	.7	1.8	4.1	1.3	2.5	.8
1922.....	1.8	.7	.8	1.8	4.6	2.3	1.5	.9
1923.....	1.3	.6	.8	1.5	3.5	1.6	1.2	.7
1924.....	1.3	.8	.7	2.0	4.6	2.3	1.6	.7
1925.....	1.7	1.1	.7	1.9	4.6	2.0	1.8	.8
1926.....	1.5	.9	.8	2.1	4.5	2.1	1.6	.8
1927.....	1.5	1.1	.8	2.2	4.7	2.3	1.4	1.0
1928.....	1.7	1.3	.8	2.2	4.6	2.2	1.4	1.1

¹ Cancer excepted.

TABLE 3.—Frequency of specified nonrespiratory disease groups which caused disability for eight consecutive calendar days or longer in a group of male industrial workers employed in different industries, by years, from 1921 to 1928—Continued

Year	Nonrespiratory, nondigestive diseases								
	Diseases of the ear and mastoid process (86)	Rheumatism, acute and chronic (51, 52)	Lumbago and other diseases of organs of locomotion (158)	Diseases of the skin (151-154)	Epidemic and endemic diseases ¹ (1-10, 12-25)	Cancer (all forms) (43-49)	General diseases not shown separately (26-30, 32-37, 41, 42, 50, 53-69)	Diseases of the bones and joints (155, 156)	Ill-defined and unknown causes of disability (205)
Average 1921-1928.....	0.6	6.0	3.4	3.9	2.7	0.6	2.5	1.0	2.0
1921.....	.0	5.6	3.0	3.6	2.6	.6	3.5	2.0	1.8
1922.....	.5	4.6	3.4	3.6	2.1	.6	2.2	1.5	2.0
1923.....	.4	4.7	2.7	3.3	2.4	.5	2.0	1.5	3.1
1924.....	.5	0.5	3.2	3.5	3.4	.6	2.3	.6	2.2
1925.....	.8	6.4	3.3	3.5	3.4	.6	2.5	.6	2.3
1926.....	.7	5.8	3.8	3.8	2.5	.8	2.5	.6	2.3
1927.....	.6	6.3	3.5	4.7	2.4	.7	2.6	1.0	1.5
1928.....	.7	6.4	4.0	4.4	2.7	.4	2.5	.7	1.7

¹ Except influenza and grippe.

SICKNESS INCIDENCE BY YEARS

In 1928 the frequency of cases of sickness and nonindustrial injuries causing disability for 8 consecutive days or longer was 113 cases per 1,000 men. This is the highest rate during any of the last eight years. For this result influenza appears to have been chiefly responsible. As shown in Table 2 and Figure 2, the influenza rate was higher in 1928 than in any year since 1920. The pneumonia rate, however, did not rise to a new peak in 1928, but remained close to its average frequency over the 8-year period. A decrease is indicated for diseases of the pharynx and tonsils, and the incidence rate of tuberculosis of the respiratory system reached a new low level in 1928. Nonrespiratory diseases as a whole appear to have occurred in 1928 at much the same frequency as in the preceding three years, and were only slightly higher (by 5 per cent) than the 8-year average. For the first time since 1922 a decrease occurred in the frequency of nonindustrial accidents.

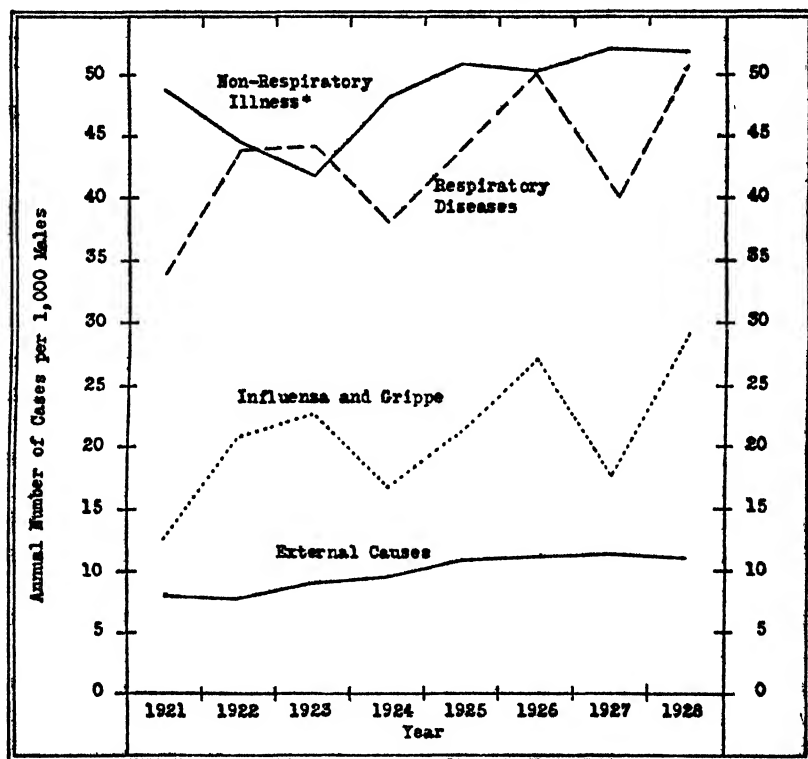
For digestive diseases as a whole, the incidence rate in 1928 was much the same as in the preceding three years. Similarly, little change is indicated in the rate of occurrence of the more important digestive diseases.

The nonrespiratory, nondigestive diseases as a group also have shown relatively little change from year to year, but within this broad group a gradual increase in the rate of circulatory-genito-urinary diseases appears to have taken place since 1922, principally on account of a larger number of cases of heart disease.

It is of interest to note that the reports show no tendency for diseases of the nervous system to increase in frequency over the last eight years. The cases of neurasthenia and the like even appear to show a slightly declining trend.

SICKNESS INCIDENCE BY MONTHS, 1920 TO 1928

The sickness rates by months are shown in Table 4 and Figure 3. It is apparent from the graph that influenza reached epidemic or near-epidemic proportions in 1920, 1922, 1923, 1926, and 1928. Even in the interepidemic years, which numbered only four in a 9-year period,



* Exclusive of accidents.

FIGURE 2.—Frequency of the principal causes of disability, 1921 to 1928

the winter incidence of this disease was of no inconsiderable magnitude. The seasonal waves of respiratory sickness exclusive of influenza were pronounced, but not nearly so much as the explosive-like curve for influenza.

NATURE OF ILLNESSES IN CERTAIN INDUSTRIES

In Table 4 the frequency of different diseases and groups of diseases is shown for men in iron and steel manufacturing, in public utilities, and in a group of miscellaneous industries, which include the manu-

facture of chemicals, abrasives, plumbing fixtures, electrical equipment, paper, paper novelties, timepieces, hats, underwear, flour, soap, and certain other products.

The sickness rates among the men in the iron and steel industry were generally lower than for the other two industrial groups. One

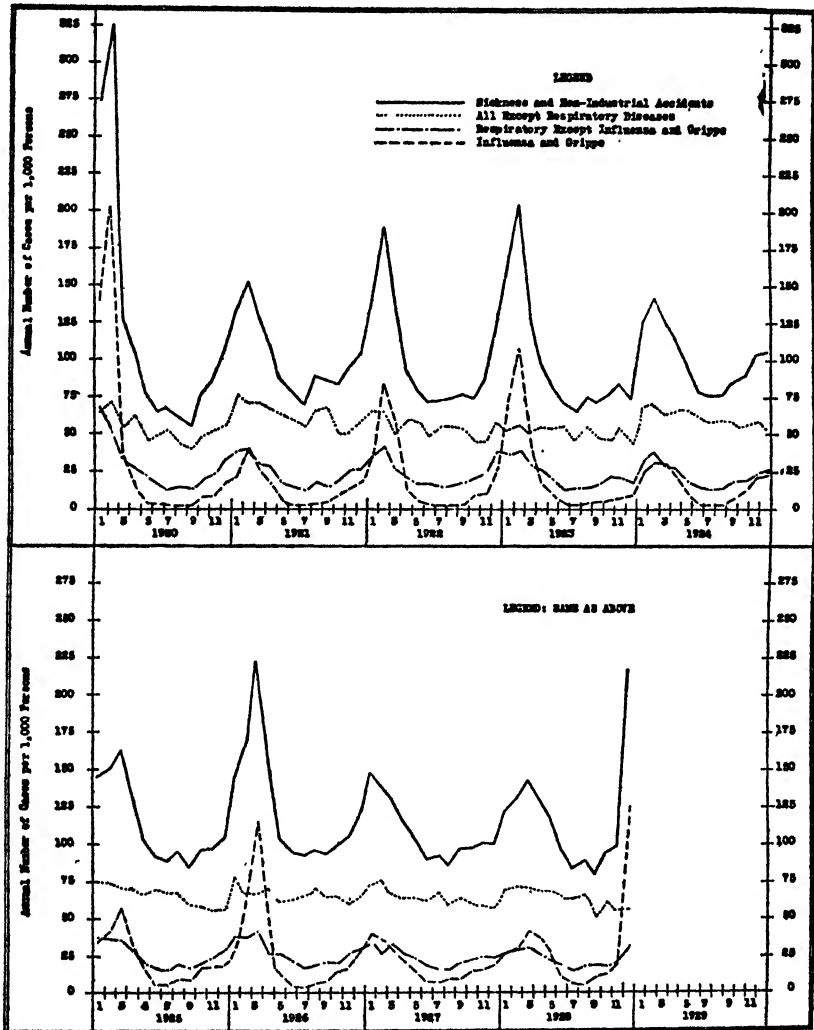


FIGURE 3.—Frequency of specified groups of diseases causing disability for 8 days or longer by month of onset from January, 1920, to December, 1929

disease which did not show a lower incidence, however, was pneumonia. Data have been collected in a large steel plant which will show the frequency of this disease in different occupations during the last five years, and a report is being prepared analyzing the occupational as well as certain other factors which may predispose workers to pneumonia.

TABLE 4.—Frequency of specified disease groups by month of onset, 1920-1928, among a group of wage earners ¹

Month of onset of disability	Number of cases per 1,000 persons per year				Month of onset of disability	Number of cases per 1,000 persons per year			
	All diseases ¹	Influenza and grippe	Respiratory except influenza and grippe ²	All except respiratory		All diseases ¹	Influenza and grippe	Respiratory except influenza and grippe ²	All except respiratory
1920					1921				
January.....	275.0	142.9	67.4	64.7	July.....	77.1	4.2	14.2	58.7
February.....	326.7	201.4	54.4	70.9	August.....	70.0	4.1	13.5	59.3
March.....	126.0	37.1	34.1	51.8	September.....	84.0	8.4	18.8	57.7
April.....	103.9	13.2	27.4	63.3	October.....	91.1	12.9	20.7	57.5
May.....	76.7	4.6	23.2	48.9	November.....	104.2	20.8	24.2	59.2
June.....	67.3	2.3	15.6	49.4	December.....	105.0	23.4	26.8	54.8
July.....	67.1	.8	12.9	53.4	1925				
August.....	60.1	1.2	15.2	43.7	January.....	145.9	34.0	36.7	74.3
September.....	56.2	2.0	14.0	40.2	February.....	150.3	41.4	35.8	73.1
October.....	78.4	7.4	21.8	47.2	March.....	162.4	56.7	35.3	70.4
November.....	85.7	9.3	24.9	51.5	April.....	130.9	32.2	29.0	69.7
December.....	106.1	18.1	31.6	56.4	May.....	102.6	15.8	20.2	66.5
1921					June.....	90.8	5.1	16.6	69.2
January.....	134.0	20.7	37.6	75.7	July.....	87.8	5.2	15.1	67.5
February.....	152.5	40.7	40.5	71.3	August.....	94.0	8.6	19.1	67.0
March.....	128.5	25.6	30.4	72.5	September.....	84.1	8.6	16.4	59.2
April.....	110.6	16.7	28.3	65.6	October.....	95.2	17.4	19.9	57.9
May.....	88.4	6.7	18.5	63.2	November.....	96.1	17.8	23.8	55.0
June.....	76.6	3.3	14.6	58.7	December.....	103.7	18.2	29.3	56.2
July.....	70.6	3.1	12.7	54.8	1926				
August.....	67.9	4.7	18.0	65.2	January.....	146.3	31.0	37.4	76.9
September.....	86.7	5.2	14.7	66.8	February.....	168.9	62.7	37.7	68.5
October.....	81.6	11.1	19.7	50.8	March.....	223.3	115.6	40.9	66.8
November.....	94.3	15.4	26.0	52.9	April.....	149.5	55.1	26.1	68.3
December.....	105.2	19.0	26.7	59.5	May.....	104.3	16.7	25.5	62.1
1922					June.....	91.2	7.2	21.2	62.8
January.....	138.4	36.5	36.4	65.5	July.....	87.0	3.5	16.7	66.8
February.....	189.0	62.2	43.2	64.2	August.....	92.8	5.5	16.5	70.8
March.....	139.9	61.3	27.4	51.2	September.....	94.2	8.5	20.6	65.1
April.....	94.7	13.1	21.3	60.3	October.....	98.4	13.1	20.8	64.5
May.....	80.8	6.4	17.7	56.7	November.....	104.2	17.5	26.1	60.6
June.....	72.2	3.8	18.2	50.2	December.....	121.5	28.6	28.7	64.2
July.....	72.7	3.3	14.8	54.6	1927				
August.....	74.7	3.0	16.1	55.6	January.....	147.4	42.1	34.2	71.1
September.....	75.5	4.3	17.6	53.6	February.....	137.7	35.9	26.8	75.0
October.....	75.1	9.6	19.7	45.8	March.....	130.0	29.4	38.5	67.1
November.....	83.0	11.4	25.0	46.6	April.....	115.0	23.2	26.6	65.2
December.....	125.8	28.5	38.7	58.6	May.....	101.6	13.7	24.2	63.7
1923					June.....	96.3	8.7	18.9	62.7
January.....	160.0	70.0	37.4	52.6	July.....	92.1	6.1	16.4	69.6
February.....	205.1	109.4	39.5	56.2	August.....	86.2	9.0	16.5	60.7
March.....	126.6	42.5	30.7	53.4	September.....	96.8	11.5	20.8	64.5
April.....	99.7	18.0	25.4	56.3	October.....	99.5	15.1	22.8	61.6
May.....	82.0	7.8	19.4	54.8	November.....	101.3	16.2	24.0	60.5
June.....	72.5	3.5	13.3	55.7	December.....	100.1	19.1	24.5	56.5
July.....	65.5	2.7	14.8	48.0	1928				
August.....	75.3	4.2	15.2	55.9	January.....	123.0	25.8	26.9	70.3
September.....	72.9	5.0	18.0	49.0	February.....	132.4	30.6	30.2	72.2
October.....	77.4	7.8	22.6	47.0	March.....	143.6	41.0	31.2	71.4
November.....	85.0	9.5	21.3	54.2	April.....	132.8	38.3	26.4	68.1
December.....	74.6	11.3	18.6	44.7	May.....	118.6	29.1	21.5	68.0
1924					June.....	96.2	12.3	19.3	64.6
January.....	125.9	24.8	32.9	68.2	July.....	86.7	7.6	14.5	64.6
February.....	142.2	32.6	34.5	71.1	August.....	69.6	6.7	17.2	65.9
March.....	124.6	32.2	29.3	63.1	September.....	81.4	11.2	19.4	50.8
April.....	116.7	23.8	27.1	65.8	October.....	93.5	13.4	17.7	62.4
May.....	94.3	11.2	19.3	63.8	November.....	97.8	20.4	19.0	58.4
June.....	80.2	3.9	15.6	60.7	December.....	217.7	126.3	32.8	58.6

¹ Annual number of cases per 1,000 persons employed in establishments sending morbidity reports to the Public Health Service. Only those disabilities from sickness and nonindustrial accidents which lasted 8 days or longer are included, except in 1920, when a few 7-day cases were included. Certain diseases are not reported, as explained in the text.

² Tuberculosis of the lungs and diseases of the pharynx and tonsils are included in the respiratory group.

TABLE 5.—Frequency of specified disabilities lasting eight calendar days or longer among male wage earners, 1922 to 1928, classified according to industry

Diseases and conditions causing disability (with corresponding title numbers in parentheses from the International List of the Causes of Death, 1920 revision)	Annual number of cases per 1,000 men			Number of cases		
	Iron and steel	Public utilities	Other industries ¹	Iron and steel	Public utilities	Other industries ¹
Sickness and nonindustrial injuries ²	91.0	114.4	113.2	30,745	23,210	33,105
Sickness (1-164, 205).....	81.4	105.5	100.8	27,498	21,410	29,489
External causes (nonindustrial injuries) (165-203).....	9.6	8.9	12.4	3,247	1,800	3,616
Respiratory diseases.....	37.1	52.7	47.9	12,515	10,698	14,020
Influenza and grippe (11).....	19.0	25.9	24.0	6,421	5,258	7,021
Tuberculosis of respiratory system (31).....	1.4	1.8	1.1	468	359	335
Bronchitis (90).....	4.0	7.4	6.6	1,350	1,494	1,940
Pneumonia—all forms (100, 101).....	4.3	2.6	2.9	1,438	521	854
Diseases of pharynx and tonsils (109).....	4.2	8.4	7.3	1,410	1,715	2,131
Other diseases of respiratory system (97, 98, 102-107).....	4.2	6.6	6.0	1,422	1,351	1,739
Digestive diseases.....	12.0	16.6	14.5	4,068	3,363	4,239
Diseases of the stomach (111, 112).....	4.4	5.4	4.8	1,475	1,088	1,390
Diarrhea and enteritis (114).....	1.1	2.1	1.8	378	417	537
Appendicitis (117).....	3.3	4.7	3.6	1,135	961	1,035
Hernia (118a).....	1.2	1.9	1.6	401	387	479
Other digestive diseases (108, 110, 115, 116, 118b-127).....	2.0	2.5	2.7	679	510	798
Nonrespiratory, nondigestive diseases.....	32.3	36.2	38.4	10,915	7,849	11,230
Circulatory and genito-urinary diseases.....	6.6	7.6	7.3	2,232	1,549	2,180
Diseases of the heart (87-90).....	1.9	1.7	1.8	626	338	517
Diseases of the veins (93).....	1.2	2.0	1.6	412	413	456
Other diseases of circulatory system (91, 92, 94-98).....	.9	.9	1.1	308	191	325
Nephritis—acute and chronic (124, 129).....	.7	.8	.7	252	163	222
Other diseases of genito-urinary system (130-136).....	1.9	2.2	2.1	634	444	610
Diseases of the nervous system.....	3.8	4.5	5.3	1,278	917	1,563
Neuralgia, neuritis, sciatica (82).....	1.8	2.2	2.4	624	444	708
Neurasthenia and the like (part of 84).....	.9	1.6	2.2	287	326	640
Other diseases of nervous system (70-81, 83, part of 84).....	1.1	.7	.7	367	147	215
Diseases of the eyes (85).....	1.0	1.0	1.4	344	203	401
Diseases of the ear and mastoid process (86).....	.4	.8	.7	140	154	192
Rheumatism—acute and chronic (51, 52).....	6.0	5.7	6.2	2,031	1,147	1,809
Lumbago and other diseases of the organs of locomotion (158).....	3.4	3.3	3.5	1,168	677	1,027
Diseases of the skin (151-154).....	3.8	3.8	4.2	1,282	777	1,229
Epidemic and endemic diseases (1-10, 12-25).....	2.9	2.4	2.8	976	478	809
Cancer—all forms (43-49).....	.6	.8	.5	184	160	143
General diseases not shown above (26-30, 32-37, 41, 42, 50, 53-69).....	2.0	2.9	2.5	690	501	733
Diseases of the bones and joints (155, 156).....	.8	1.0	.9	258	206	277
Ill defined and unknown causes (205).....	1.0	2.4	3.1	326	490	917
Number of years of life under observation.....				337,681	202,822	292,477

¹ Including employees of industries producing chemicals, abrasives, plumbing fixtures, electrical equipment, paper, paper novelties, timepieces, hats, underwear, flour, soap, and certain other products.

² Industrial accidents and certain diseases are not reported as explained in detail.

SUMMARY

1. Reports from a group of about 35 industrial sick-benefit associations and company relief departments showed that cases of sickness and nonindustrial injuries causing disability for 8 consecutive calendar days or longer occurred at the rate of 103.5 cases annually per 1,000 men during the period 1921 to 1928, inclusive. This figure may understate to some extent the real incidence of disability lasting longer than one week, because sick benefits are usually denied for certain diseases and for illness of any kind under certain circumstances as explained above.

2. Respiratory diseases were reported as the cause of 42.4 per cent of the cases; digestive diseases, 13.5 per cent; and external causes (nonindustrial accidents), 9.8 per cent. These three groups, accordingly, accounted for nearly 66 per cent of the cases for which sick benefits were paid by associations reporting to the United States Public Health Service.

3. In the respiratory group influenza or grippe continues to be of outstanding importance, accounting for 57.5 per cent of the respiratory cases in 1928, compared with 50 per cent during the period 1921 to 1928.

4. The frequency of disability on account of respiratory tuberculosis was lower in 1928 than in any of the preceding years of record.

5. Five of the nine years covered by the record were marked by influenza epidemics. In the other four years the winter incidence of influenza or grippe was of no inconsiderable magnitude.

6. Relatively low sickness rates were found among men employed in the iron and steel industry. An exception was the rate for pneumonia, which appears to be about 50 per cent higher than among other industrial employees as a whole. Data for a study of the incidence of pneumonia by occupation in the steel industry have been collected and are being analyzed.

A NEW METHOD OF EVALUATING THE POTENCY OF ANTINEURITIC CONCENTRATES

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INTRODUCTION

The chemical isolation of the antineuritic vitamin first recognized by Eijkman in 1897 has engaged the attention of investigators for many years with but little success and not infrequently with much disappointment. The difficulties involved are no doubt manifold, some of a chemical nature and others of a biological character. To the latter belongs the problem of ascertaining the antineuritic potency of the concentrated or purified fractions which the chemist may have obtained in the course of his investigations. It must be evident that so long as the chemical nature of the antineuritic vitamin is unknown the chemist must rely upon a biological test to guide him, and unless the test object measures specifically and with reasonable accuracy the substance in question, the test is not only of uncertain value but it may actually be misleading.

Of the various tests employed by those interested in the biochemistry of the antineuritic vitamin, such as the chemical color reactions, the influence of concentrates upon the growth of yeast, and the

action of such concentrates in certain animals, only the last need be considered here, for the first two types of reactions were abandoned early as either lacking in specificity or in accuracy or in both.

Critical examination of such methods as involve the use of certain laboratory animals as the test object reveals some fundamental defects of either a theoretical or practical nature. The discovery by Eijkman in 1897 of polyneuritis in pigeons when kept upon a diet of polished rice, and his recognition of the similarity of this condition with that of human beriberi has been the chief reason for the use of polyneuritis *gallinarum* as a test object in ascertaining the activity of antineuritic concentrates. It was soon recognized, however, that this test lacked in certain fundamental essentials, which many workers have attempted to correct but not altogether successfully. Thus it was early recognized that the pigeon-cure test, which consisted in ascertaining the amount of vitamin fraction required to cure polyneuritis in pigeons subsisting on rice, was inadequate for several reasons. First, spontaneous cures had been observed not infrequently. Second, cures effected in polyneuritic pigeons by the administration of the antineuritic substance have often been noted to be little or not at all sustained, and instances have been known in which birds were totally refractory to treatment during subsequent attacks. Furthermore, temporary cures in polyneuritic pigeons are reported to have been effected by a variety of chemical agents, such as histamine, pilocarpine, nitrites, thyroxine, choline, etc., substances bearing no relationship whatever to the antineuritic vitamin (1, 2, 3).

To circumvent some of the fundamental difficulties inherent in this method of testing for antineuritic potency, modifications have been suggested, which, however, are not entirely free from objections. Thus Williams (4) in 1916, though still making use of the pigeon as a test object, proposed to substitute the preventive for the curative test. The serious difficulty involved in this test, apart from the fact that it is necessarily of very long duration, is the great individual variation in the time of onset of the polyneuritic symptoms in different birds. Recognizing these difficulties, Seidell in 1922 (5) developed a technique of assaying his antineuritic concentrates, which consists essentially in determining the minimal amount of the vitamin supplement required to maintain body weight in pigeons subsisting on polished rice. This, it will be noted, must either assume the identity of the antineuritic and growth factors, which is contrary to all the available recent evidence, or else it must assume that maintenance of body weight in the pigeon is a function of the antineuritic vitamin; admittedly a possibility, but clearly an assumption which requires proof. Furthermore, this technique fails to take into account the fact that a diet of polished rice is not only deficient in the antineuritic vitamin but that it also lacks in other dietary essentials, such as

minerals, certain amino acids, and vitamins other than the antineuritic, and, though the dietary requirements of the pigeon appear to be very simple, it is nevertheless possible that a supplement preventing loss of weight in the pigeon on polished rice may do so by supplying certain other deficiencies as well as that of the vitamin under consideration. That such might indeed be the case appears from the experiments of Di Mattei (6), who was able to produce paralysis in pigeons without loss of weight when fed a diet of polished rice supplemented with sunflower seeds.

Fully cognizant of the fundamental defects inherent in the pigeon test, McCollum and Simmonds (7) adopted in 1918 the white rat as a test object, making use of the growth curve as an index of the potency of the vitamin B supplement when added to a basal ration adequate in all other respects. This method, which has since been refined in certain details, has been very generally used in testing foodstuffs for their vitamin B content, and, except for the length of time the method requires, it has served the purpose admirably.

The rat method of McCollum and Simmonds, however, was based on the belief current at that time that the antineuritic and growth-promoting functions of vitamin B were physiologic manifestations of one and the same substance, so that the antineuritic potency of a vitamin concentrate was in effect measured by this method in terms of its growth-promoting power. The recent progress made in the physiology and biochemistry of vitamin B seems to indicate quite definitely that it consists of at least two factors with different chemical as well as physiologic properties, namely, the thermolabile antineuritic, and the heat stable growth factors (8, 9, 10, 11), the latter of which is according to Goldberger and associates (12) probably identical with their pellagra-preventive factor. It is clear that in the light of our present knowledge of the multiple nature of vitamin B a test which takes into account the growth curve alone, while it may be useful in evaluating the growth factor of the B complex, is no criterion of its antineuritic component.

In this paper a method is described for the evaluation of the antineuritic or thermolabile component of the vitamin B complex.¹ This is believed to be free from the objections and criticisms raised against the other methods in vogue, besides having the further advantage of being specific, rapid, and reasonably accurate.

The present method of testing for the antineuritic vitamin.—The method proposed herein for the evaluation of vitamin concentrates for antineuritic potency is the direct outcome of and the logical

¹ There has been considerable discussion in the literature as to the nomenclature of the two vitamins which until recently were known as vitamin B. Owing to lack of agreement on this subject and to avoid confusion, these factors will be referred to in this paper as the antineuritic or thermolabile and the growth or thermostable components of the B complex. (For the discussion as to nomenclature see Dutcher: Science, 1928, Vol. 68, 206.)

sequence to the recognition of the dual nature of vitamin B and the appreciation of the fact that the dietary of the rat in order to be complete must contain besides the thermolabile antineuritic vitamin the more heat stable growth-promoting constituent (8). In other words, withholding both factors from the dietary of the rat results in rapid loss of weight, inanition, and death with no evidence of paralysis, while a diet so constituted as to include the thermostable factor but lacking in the antineuritic vitamin almost invariably results in specific polyneuritis after a period usually of from 6 to 10 weeks on the deficient diet. (See Chart 1, curves A and B.²) Furthermore, the administration of a yeast concentrate containing the antineuritic vitamin brings about *prompt* and *complete* recovery from the paralytic symptoms, the duration of the remission being from 3 to 15 or more days, depending upon the size of the dose administered. After a variable period of recovery, which is roughly pro-

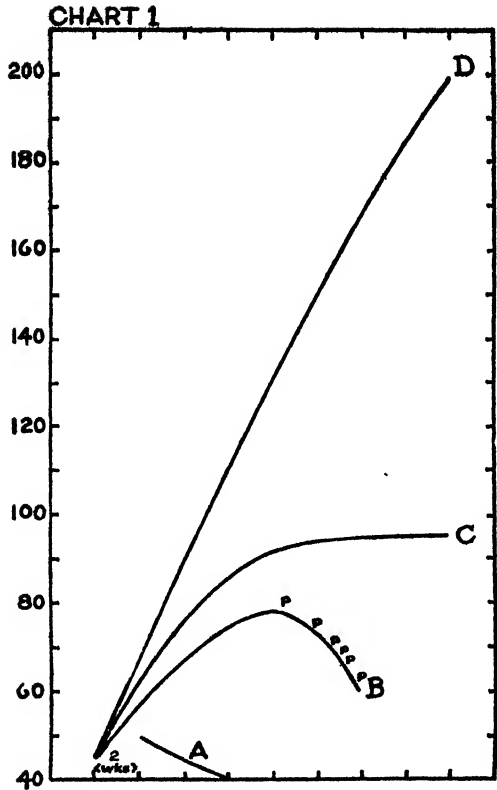


CHART 1.—The relation of the thermolabile and thermostable components of the B complex to growth and beriberi paralysis in rats. Each curve represents the average of four to six animals. (A) Weight curve of six rats on basal diet deficient in the B complex. No paralysis. Death in about four weeks. (B) Weight curve of six rats on the same basal diet plus 10 per cent autoclaved yeast. All the rats developed polyneuritis (at P) and died in from three to five days. (C) Weight curve of four rats on same basal ration plus 2 per cent brewer's yeast. No evidence of polyneuritis and inadequate growth, indicating that the requirements for the thermolabile factor were met but that the needs for the thermostable factor are far greater than that furnished by 2 per cent yeast. This is confirmed by the next curve. (D) Weight curve of four rats on the same diet as that of (C) with the addition of 10 per cent autoclaved yeast

² It would thus appear that the requirements of the rat for the thermostable factor are greater than for the thermolabile factor; hence on diets so constituted as to be deficient in both, the former is the limiting factor, and unless this is adequately supplied the antineuritic deficiency does not manifest itself. Such an explanation would account for the general failure of earlier workers to produce regularly experimental beriberi in rats. Funk (13), for instance, erroneously assumed that polyneuritis due to deficiency of the antineuritic vitamin can only be produced in animals in which uric acid is the end product of purine metabolism and not allantoin as is the case in the rat. On the other hand, McCollum and Simmonds (7), making use of the growth curve as a criterion of vitamin B potency, state that typical polyneuritis results in many of the experimental rats when the diet is lacking in vitamin B but properly constituted otherwise. In the light of our experience with the purified synthetic ration, which if lacking in both factors of the vitamin B complex has never given rise to polyneuritis in rats, it is probable that in their ration McCollum and Simmonds may have had some of the heat stable factor.

portional to the amount of antineuritic substance given, the paralysis recurs but may be again alleviated by a suitable dose of the vitamin. The same animal may thus be used many times over with

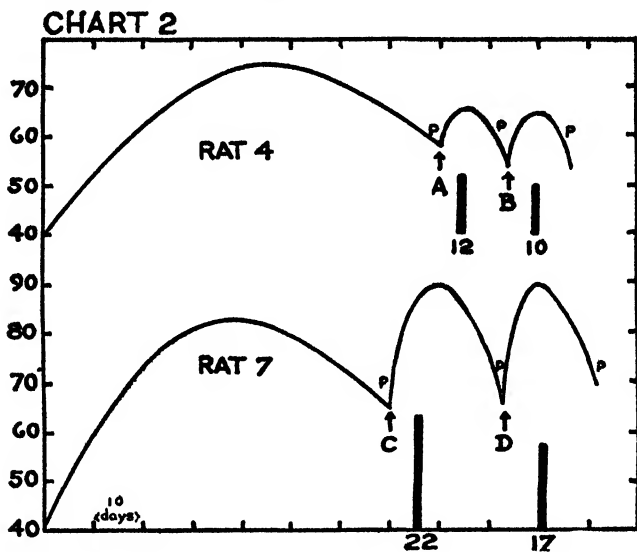


CHART 2.—Growth curve and period of onset of polyneuritis in rats on a beriberi-producing diet. Effect of intravenous injections of antineuritic vitamin on the paralytic symptoms and body weight. At A and B injected 2 milligrams antineuritic concentrate 26.112; at C and D, 10 milligrams of same concentrate. In this, as in all subsequent charts, ordinates represent weight in grams and abscissae time in 10-day intervals. The solid blocks with corresponding numerals indicate the duration of the recovery period following the injection of the antineuritic vitamin. Occurrence of paralysis is indicated by the letter P

apparently very little change in its response to the effects of the antineuritic vitamin, as illustrated in Charts 2 to 9. The potency of the

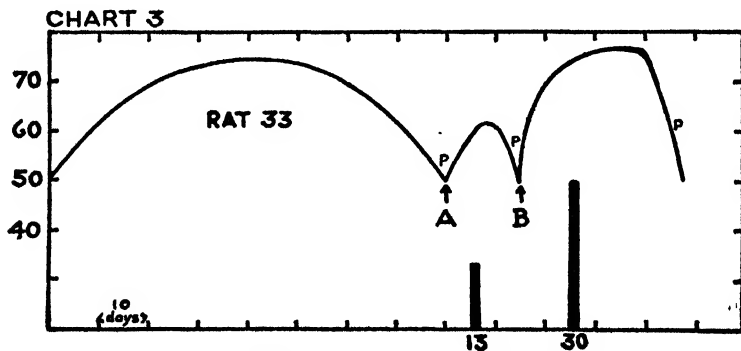


CHART 3.—Effect of graded doses of antineuritic concentrate 26.112 on weight and paralysis. At A, 2 milligrams and at B, 10 milligrams of the concentrate were injected intravenously

concentrate can thus be ascertained by determining the minimum amount thereof required to bring about complete recovery from the specific paralysis, the amount being administered in a single dose.

THE DETAILS OF THE METHOD

The rats used in this work were from a stock colony maintained upon a diet of bread and milk, whole yellow corn, rolled oats, with lettuce given two or three times a week to supply the antisterility factor. The young, weighing 50 to 70 grams, usually about 60 grams, were taken at the age of 30 to 40 days and placed upon the following polyneuritis-producing diet:

	Per cent
Casein.....	18
Salt mixture 185 (14).....	4
Autoclaved brewer's yeast.....	10
Cod-liver oil.....	1
Olive oil.....	9
Corn starch ³	58

The casein, finely ground, was leached with 0.2 per cent acetic acid for 10 to 12 days, washed with distilled water and dried in a current of air. The autoclaved yeast supplying the thermostable growth factor was prepared by heating in the autoclave under 15 pounds pressure for from 4 to 6 hours, dried and finely ground brewer's yeast in layers of about $\frac{1}{4}$ inch thick. The cod-liver oil in the ration amply meets the vitamin A and D requirements. On such a diet good growth takes place usually for about 20 to 40 days, following which

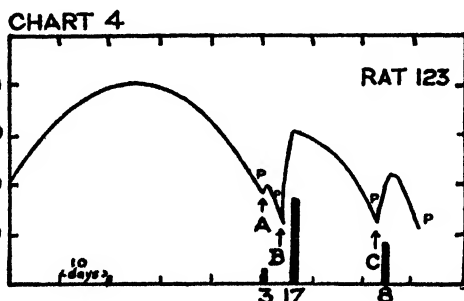


CHART 4—Effect of three different antineuritic concentrates on weight and paralysis. At A, 10 milligrams 27.152; at B, 6.5 milligrams P; and at C, 6.5 milligrams 26.164 were injected, showing that 10 milligrams 27.152 is just about the minimum curative dose and that concentrate P is more active than 26.164

growth ceases despite the almost normal food intake to within a few days of the onset of paralysis. The animals then decline considerably in weight and finally in from 50 to 80 days from the beginning of the dietary period develop typical paralytic symptoms characterized by lameness of the hind and fore limbs, incoordination, spastic gait, cart-wheel and rolling movements. If untreated, the paralytic condition progresses for two to five days, when the animal dies. If, however, an adequate dose of the antineuritic vitamin is given, prompt recovery ensues, which may be noticeable in 3 to 5 hours and unmistakable in 18 to 24 hours. The cure thus effected may last, as stated previously, from three days upwards, depending upon the size of the dose. Three days is about the shortest remission period that a minimal effective dose of an antineuritic concentrate will bring about.

³ Argo corn starch was used without special treatment. It is evidently nearly if not completely devoid of either of the vitamin B complex.

With the recovery from the paralytic symptoms there is noticeable an improvement of the appetite, an increase in the food consumption, and a gain in weight, the latter being somewhat proportional to the dose given. These points are illustrated in Charts 2 to 9.

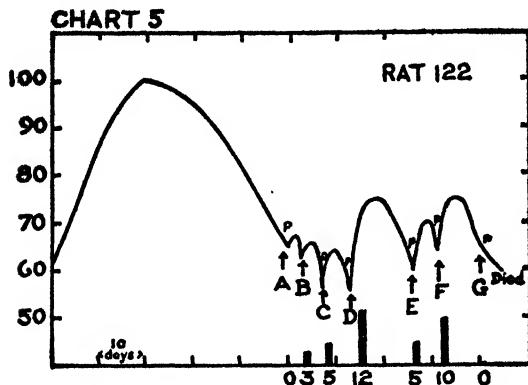


CHART 5.—Effect of repeated injections of three different antineuritic concentrates in graded doses on weight and paralysis. At A and B, 10 and 20 milligrams of concentrate 26.152 were injected, respectively. At C, 5 milligrams 26.164, and at D, 5 milligrams P_7 were injected, showing that the latter is the more active. At E, 5 milligrams 26.164 were repeated, and the reaction is nearly the same as at C. At F, 10 milligrams 26.164 were given. At G, 5 milligrams $CaCl_2$ were injected, one of the many nonspecific substances having no effect whatever upon the paralytic symptoms. Although reactions D and F are nearly the same, it is not to be inferred that 5 milligrams P_7 is equivalent in potency to 10 milligrams 26.164

The administration of the antineuritic concentrate to polyneuritic rats in order to ascertain the minimum effective dose thereof is best carried out by injecting the calculated dose intravenously. From a few experiments the indications are that oral administration will accomplish the same result. (See Chart 9.) Oral administration, however,

is difficult and quantitatively less certain than the intravenous route, because the animals often refuse, or on account of the spastic incoordination are unable to consume, the vitamin offered to them. In the present experiments, in which the vitamin was administered orally, the stomach tube was resorted to. The intrave-

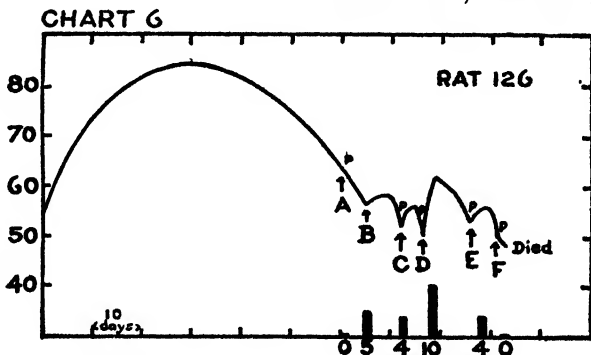


CHART 6.—Effect of repeated injections of three different antineuritic concentrates and a comparison of their activity. At A and B, 3 and 6 milligrams, respectively, were injected of concentrate No. 171. At C, 3 milligrams 26.164; at D, 3 milligrams P_7 ; at E, 1 milligram P_7 ; and finally at F, 0.5 milligram P_7 . It may be inferred from this that the minimum curative dose of 171 is about 6 milligrams, that of P_7 about 1 milligram, half a milligram being insufficient, and since the minimum effective dose of 26.164 is 3 milligrams (see Table 1), it follows that P_7 is about three times as active as 26.164, weight for weight

nous route is, however, much to be preferred because of its greater accuracy, freedom from uncertainties of delayed or incomplete absorption and because it eliminates the possibility of local effects upon the

gastro-intestinal tract. In this work, in which some 200 rats have been used, about 600 to 800 intravenous injections were made of various fractions, both active and inactive, in many cases the animals receiving from five to ten or more injections.

We prefer making the injections into one of the tail veins, thus avoiding all operative procedures. After warming the tail for a few moments in warm water the veins, more especially the lateral ones, become suffi-

ciently prominent so that with a little experience the operator can easily introduce a 26-gage needle while an assistant holds the animal, and the required amount is then injected from a tuberculin syringe, the volume injected being from 0.5 to 1 cubic centimeter. The only points to be observed are that the solution injected should be nearly neutral and it must, of course, be free from extraneous toxic substances. After the injection, the animal is returned to its

cage and the following morning its condition and weight are noted. With an adequate dose, there will be some gain in weight, and complete recovery or pronounced improvement. If the material is inert or the dose insufficient, the paralytic condition will be more severe and the weight of the animal may remain unchanged or may show a further decline. With an

amount of the antineuritic concentrate bordering on the minimal effective dose, it may be necessary to observe the animal for another 24 hours before a decision can be reached. As soon as the paralytic symptoms reappear the animal may be used again.

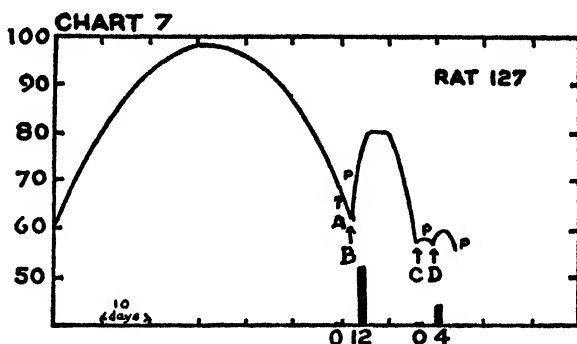


CHART 7.—Effect of repeated injection of concentrate 171 in varying doses. At A, 3.5 milligrams; at B, 31 milligrams; at C, 5.7 milligrams; and at D, 11.5 milligrams were injected. Note proportionality of response to dose injected

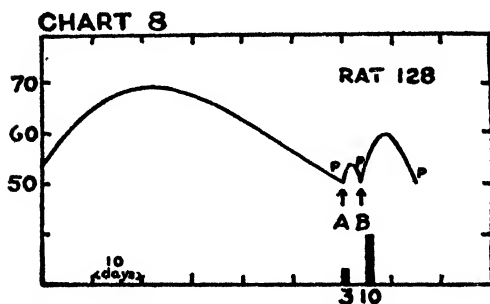


CHART 8.—Effect of 9 and 19.5 milligrams of concentrate 171 injected at A and B, respectively. Taken together with Charts 6 and 7, it may be inferred that the minimum curative dose of this concentrate is somewhere between 6 and 9 milligrams

THE RESULTS OBTAINED WITH THE PRESENT METHOD

In the following section a somewhat detailed account will be given of the actual results obtained in attempting to evaluate the antineuritic potency of several concentrates by the use of this method. This will serve to indicate the degree of accuracy that may be expected of it and, what appears to be even more important, its specificity. Many substances were tested in the course of this work, but in general they may be divided into three groups: (A) Antineuritic concentrates derived from brewer's yeast, (B) inert fractions obtained in

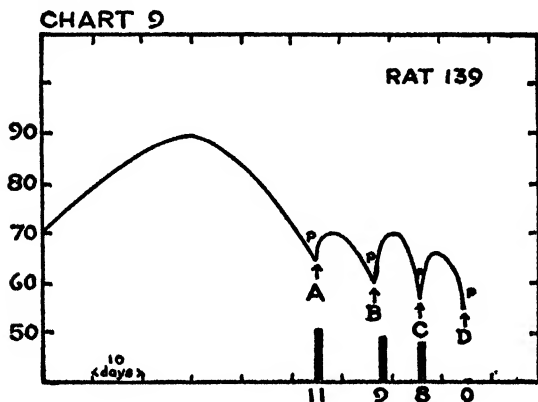


CHART 9.—Comparison of oral and intravenous administration of antineuritic concentrate and comparative effects of active and inert fractions. At A, 3 milligrams P_7 given by stomach tube; at B, same dose given intravenously, at C, same dose of Q_8 given intravenously; and lastly at D, 30 milligrams R_6 , a concentrate similar to P_7 and Q_8 , but made from autoclaved yeast, was given intravenously

the course of concentration, (C) nonspecific substances and certain pharmacologic agents.

(A) In this group are included five concentrates. Three of these were kindly furnished by Dr. Atherton Seidell, which he obtained in the course of his work and designated 26.112, 26.164, and 27.152. The first two concentrates were made by Seidell in 1927 and 1928, respectively, according to the method described by him in

1926 (15). The third fraction, representing further progress in the isolation of the antineuritic vitamin, was made by Seidell in 1929 (16). Two of the five concentrates in this group P_7 and Q_8 were made by the author from brewer's yeast. On account of the simplicity of the method, the ease of preparation of the concentrate, and its relatively high potency it seems to merit description.

Dried brewer's yeast is thoroughly triturated in a mortar with 5 volumes of N/25 acetic acid and placed in the cold room overnight. The next morning the extract is centrifuged, the supernatant solution decanted and poured with stirring into 2 volumes of 95 per cent alcohol. After standing several hours in the cold room, the supernatant fluid is decanted, filtered, and concentrated under reduced pressure to about one-twentieth of the original volume. This is now poured slowly with stirring into 9 volumes of acetone and is left in the cold room overnight. The acetone solution is decanted, filtered if necessary, and concentrated under reduced pressure to one-twentieth its volume. This is diluted 10 times with distilled water. This

aqueous solution having a pH of about 4, is stirred thoroughly with one-fiftieth to one-one hundredth its weight of purified norite ⁴ three times, the norite being filtered off in each case on a Buchner funnel under suction and washed with a little distilled water. The combined norites are treated on the water bath with about 5 volumes of N/20 HCl in 50 per cent alcohol and filtered under suction, the operation being repeated three times. The increased acidity, heat, and alcohol all aid in the elution of the active principle adsorbed on the norite. The eluent is concentrated under reduced pressure to about one-twentieth its volume. This solution having a pH of about 2 has kept well in the cold room for several months.⁵ Just before injection it is diluted as required and made neutral to litmus by the addition of NaHCO₃. Two different lots made by the same method at different times are referred to in this paper as P₇ and Q₈, respectively.

TABLE 1.—The standardization of five concentrates for antineuritic potency

Rat No.	Weight	Dose	Result		Rat No.	Weight	Dose	Result		Rat No.	Weight	Dose	Result	
			Recov- ery	Weight change				Recov- ery	Weight change				Recov- ery	Weight change
	Gms.	Mgm.	Days	Gms.		Gms.	Mgm.	Days	Gms.		Gms.	Mgm.	Days	Gms.
Concentrate 26 112					Concentrate 27 152					Concentrate Q ₈				
9	57	0.5	0	-3	121	62	5.0	0	0	194	49	0.5	0	+1
10	55	5.0	0	-1.9	246-7	90	10.0	0	0	188	55	.5	0	-1
12	58	1.0	0	-1.3	244-5	97	10.0	5	-1.8	197	65	.5	5	+3
4	59	2.0	11	+11	244-6	61	10.0	0	+4	147	57	1.0	0	-2
5	58	2.0	11	+9	122	65	10.0	0	+3	148	52	1.0	4	+3
33	65	2.0	9	+9	123	58	10.0	3	+2	149	82	1.0	14	+3
50	50	2.0	13	+12	246-5	92	20.0	10	+12	151	85	1.0	7	-3
12	58	5.0	15	+14	115	64	20.0	5	+10	146	85	2.0	14	+3
23	60	5.0	6	+8	122	63	20.0	5	+3	147	55	2.0	10	+5
24	82	5.0	7	+8	124	70	20.0	2	+3	144	57	2.0	7	+7
26	68	5.0	7	+12	114	55	25.0	10	+9	167	75	2.0	10	+5
28	56	5.0	8+	+24	113	64	50.0	10	+10	194	56	2.0	10	+3
6	45	10.0	20	+22	244-1	66	100.0	15	+35	185	61	2.0	10	+6
7	65	10.0	19	+20						186	48	2.0	8	+6
8	60	10.0	25	+23						139	57	2.0	8	+9
1	55	15.0	25	+18						145	90	10.0	18	+22
Concentrate 26 164					Concentrate P ₇									
89	76	1.0	0	-10	135	40	0.5	0	0					
78	64	2.0	0	+4	134	42	.5	2	+3					
87	54	2.0	0	0	131	65	.5	0	0					
133	50	2.0	0	+5	126	48	.5	0	0					
88	70	3.0	4	+8	101	56	.7	0	+4					
89	73	3.0	6	+13	134	47	1.0	7	+2					
126	52	3.0	3	+4	135	40	1.0	7	+5					
85	68	4.0	17	+10	131	75	1.0	7	+2					
116	54	5.0	5	+7	136	47	1.0	0	0					
122	60	5.0	5	+7	126	53	1.0	5	+3					
125	63	5.0	8	+10	133	50	2.0	12	+8					
123	52	6.5	8	+10	132	70	2.0	10	+5					
122	64	10.0	11	+11	101	60	2.0	4	+4					
					102	60	3.0	6	+14					
					126	50	3.0	10	+12					
					122	55	5.0	14	+20					
					123	52	6.5	18	+19					
					106	67	7.0	12	+22					

⁴ The norite is boiled with 10 per cent HCl, washed till free from chloride, and air-dried.

⁵ The yield of active material by this method is roughly in the proportion of 1 gram to 200 grams dried yeast. The solids of this solution were determined by evaporating a definite volume thereof on the water bath and drying to constant weight at 105° C.

In the accompanying table are given the results of assay for antineuritic potency of the five foregoing concentrates by the method described herein. Besides giving the relative antineuritic potency of the five preparations, this table indicates the degree of accuracy that may be expected from this method. It is furthermore apparent that though the period of recovery from the paralytic symptoms is generally proportional to the dose of the antineuritic concentrate administered, the relationship is not a quantitative one, and for an accurate evaluation it is necessary to ascertain the minimal dose that is just effective. It will be seen that the dosages given are expressed in milligrams with no reference to the weight of the animal. An analysis of the results indicates that no greater accuracy can be expected from this method by adjusting dosage on the basis of body weight.

The relative potency of the five preparations given in Table 1 may be summarized in terms of the minimum effective dose as follows:

Concentrate	Minimum effective dose
	<i>Milligrams</i>
26.112.....	2
26.164.....	3
27.152.....	20
P ₇	1
Q ₆	1

It may be of interest to state that concentrates 26.112 and 26.164, both prepared by Doctor Seidell, were made in the same manner, with the exception, however, that the latter contained considerably more inorganic material, the difference being almost sufficient to approximately account for the difference in potency. A consideration of the potency of three of the above concentrates in terms of their nitrogen content reveals the following relationship:

Concentrate	Minimum effective dose	
	Milligrams concentrate	Milligrams N.
26.164.....	3	0.195 (Seidell (16))
27.152.....	20	.06 (Seidell (16))
Q ₆	1	1.188

¹ I am indebted to Mr. C. G. Remsburg for the nitrogen determination.

It appears therefrom that on the nitrogen basis concentrates 26.164 and Q₆ are of approximately the same potency, while at least two-thirds of the solids of 26.164 must be inert. Quite in harmony with this and in agreement with Seidell's supposition that the active sub-

stance is a nitrogenous body (16), it appears that in his concentrate 27.152 he has effected on the nitrogen basis a threefold purification, from which it follows that at least two-thirds of the N in 26.164 or in Q₆ must be inert and no more than one-sixtieth of the solids of 27.152 can be active.

A comparison of the results obtained herein with preparations 26.164 and 27.152 with those reported by Seidell (16), in which weight maintenance of the pigeon was used as a criterion, shows decided lack of agreement. According to Seidell's figures, preparation 27.152 represents a concentration of about ten times as compared with 26.164, while on the basis of the present work the extent of purification is only threefold. The disparity in results is clearly due to the disproportionate requirements of 27.152 and 26.164 for the maintenance of the pigeon on the one hand and the cure of polyneuritis in the rat on the other. Thus the pigeon maintenance dose of 26.164 is about seven and one-half times the beriberi curative dose for the rat, while the pigeon maintenance dose of 27.152 is only three times the dose required to cure polyneuritis in the rat. This is shown in the following table:

Preparation	Pigeon maintenance dose (Seidell) (16)	Polyneuritis curative dose-rat	Ratio
26.164	23	3	7.7 : 1
27.152	60	20	3.0 : 1

Apart from the question as to which of the two methods represents a more accurate index of the antineuritic potency of the above or any other concentrate, these results at least emphasize one point clearly, and that is the impossibility of comparing the merits of the various chemical procedures used by different men in the concentration and purification of the antineuritic vitamin unless one biologic method is adopted in common for testing of the potency of such concentrates. For reasons set forth in the earlier part of this paper, it is felt that the present method offers a more reliable means of estimating antineuritic potency than has heretofore been suggested. The above disparity might of course be supposed to be due to the known greater nutritional requirements of the rat as compared with the pigeon. In view of the specificity of the rat test, however, such an explanation appears extremely improbable. A more probable explanation for the relatively high potency of 27.152 as measured by the maintenance dose in the pigeon would seem to be the high mineral content of this preparation (possibly in excess of 99 per cent) which may contribute considerably by supplying the mineral deficiency of the polished rice diet.

(B) Many fractions of slight or no activity were tested by the present method in the course of this work, with results thoroughly reliable, indicating its wide applicability and general usefulness in guiding one through a series of chemical manipulations for the purpose of effecting purification. Among these are also included several concentrates made from the autoclaved yeast used in the present beriberi-producing diet. These concentrates were made by the method described for P₇ and Q₈, and when given intravenously in 10 to 30 milligram doses or by stomach tube up to 100 milligrams had no effect whatever upon the paralytic symptoms.

(C) As a further check upon the specificity of this method a number of nonspecific substances and pharmacologic agents were injected from time to time into paralytic rats with no effects whatever upon the paralytic symptoms. This is especially important in view of the fact that similar paralysis in pigeons has been reported by various observers to respond to a variety of nonspecific substances. There is, of course, no limit to the number of pharmacologic and other chemical agents that one might test. In these experiments special attention was directed to such substances as have been reported to effect temporary cures in paralytic pigeons. The following is a list of the substances used and the dosages given, which usually represent the maximum amount tolerated, all the injections having been made intravenously:

Substance injected	Dose in milligrams	Substance injected	Dose in milligrams
Choline hydrochloride 0.25 per cent solution.....	2.5.	Glucose 20 per cent solution.....	200.
Pilocarpine nitrate.....	0.5 to 2.0	Sodium nitrite.....	0.5.
Histamine phosphate.....	1.0 to 4.0.	Sodium nitrate.....	50
Hemin in alkaline solution.....	4.0.	Calcium chloride.....	5.
Glutathione (reduced).....	10 to 20. ¹	Sodium sulfate.....	100.
		D ₁ sodium phosphate.....	40 to 80.

¹ I am indebted to Dr. J. M. Johnson for a supply of glutathione.

None of the above substances had any effect whatever upon the paralytic symptoms of the rat, thus excluding in large measure the possibility of nonspecific reactions.

SUMMARY

A method is described for the estimation of the antineuritic potency in water-soluble concentrates. The method is based upon the uniform production of polyneuritis in rats on a diet in which the antineuritic thermolabile component of the vitamin B complex is the sole limiting factor and the determination of the minimum curative dose of a given concentrate, the dose being injected intravenously.

The method claims specificity, rapidity, and a sufficient degree of accuracy to be a useful and reliable guide in the chemical puri-

fication of antineuritic concentrates with a view toward isolating the active principle.

It is believed that much of the present-day confusion concerning the relative merits of the various chemical procedures employed by biochemists in the purification and isolation of the antineuritic vitamin would be clarified if a uniform reliable method were adopted for the standardization of their potent fractions.

A method is described for the preparation of an antineuritic concentrate of considerable potency from dried brewer's yeast. The method simply involves fractional precipitation of inert material with organic solvents, adsorption and elution of the active substance with different solvents under different pH values. On account of the ease and certainty with which active material can be prepared by this method, it is believed that it might well serve as a starting point for further purification.

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AMERICAN PUBLIC HEALTH ASSOCIATION TO MEET IN FORT WORTH, TEX.

The Fifty-ninth Annual Meeting of the American Public Health Association will be held in Fort Worth, Tex., during the week of October 27, 1930, with the Hotel Texas as headquarters.

The annual meetings of this oldest and strongest of public health organizations bring together for a week of scientific discussion all of the public health leaders of the continent. It is always the most important health convention of the year. Health officers, nurses, dieticians, sanitary engineers, child and industrial hygienists—all of

the specialists that make up the public health profession—meet to consider their common problems. Each of the 10 sections of the association—health officers; laboratory; vital statistics; public health engineering; public health nursing; public health education; food, drugs, and nutrition; industrial hygiene; child hygiene; and epidemiology—arrange an individual program, and there will be a number of general sessions to which the public is invited.

Detailed programs of the Fort Worth meeting will be announced later in the year in the official publication of the association, *The American Journal of Public Health* and *The Nation's Health*. Further information may be obtained from the executive secretary, Mr. Homer N. Calver, 370 Seventh Avenue, New York, N. Y.

MORTALITY SUMMARY FOR 77 CITIES, 1929

Number of deaths, death rates, and infant mortality in 77 large cities in 1929 and comparison with 1928

[From the Weekly Health Index, Bureau of the Census, Department of Commerce]

City ¹	Total deaths ^a	Death rate ^b	Deaths under 1 year ^c	Provisional infant mortality rate, 1929 ^{b, c}	Infant mortality rate, 1928	Mortality data for calendar year, 1928 ^d		
						Total deaths	Death rate	Deaths under 1 year
Total (64 cities).....	382,649	13.0	36,919	63	68	386,922	13.1	40,750
Akron ^f	2,347	-----	333	59	69	2,378	-----	349
Albany.....	2,062	17.2	179	75	69	1,994	16.6	183
Atlanta.....	4,194	16.5	472	96	100	4,280	16.8	525
White.....	2,127	(A)	246	150	71	2,243	(A)	246
Colored.....	2,067	(A)	226	69	156	2,037	(A)	279
Baltimore.....	11,654	14.1	1,087	71	82	11,929	14.4	1,205
White.....	8,778	(A)	729	60	70	8,970	(A)	881
Colored.....	2,876	(A)	358	111	125	2,959	(A)	414
Birmingham.....	3,967	17.0	485	87	94	3,882	17.5	554
White.....	1,903	(A)	212	63	74	1,829	(A)	259
Colored.....	2,064	(A)	273	124	127	2,053	(A)	295
Boston.....	11,580	14.5	1,216	66	77	11,568	14.5	1,445
Bridgeport ^f	1,737	-----	209	69	60	1,731	-----	183
Buffalo.....	7,942	14.3	762	65	74	7,673	13.8	896
Cambridge.....	1,405	11.2	143	51	54	1,478	11.7	147
Camden.....	1,688	12.5	212	74	77	1,700	12.6	233
Canton.....	1,159	10.0	129	62	84	1,184	10.1	181
Chicago.....	37,498	11.9	3,572	61	64	39,563	12.5	3,778
Cincinnati ^f	7,841	-----	658	75	85	7,579	-----	774
Cleveland.....	10,976	10.0	1,055	61	60	10,426	10.3	1,076
Columbus.....	4,224	14.2	354	67	73	4,198	14.0	396
Dallas ^e	2,958	13.6	358	-----	-----	2,658	12.2	351
White.....	2,816	(A)	290	-----	-----	2,015	(A)	270
Colored.....	642	(A)	68	-----	-----	643	(A)	81
Dayton.....	2,250	12.2	222	63	67	2,175	11.8	227
Denver.....	4,221	14.4	400	80	91	4,684	15.9	483

¹ For the cities for which deaths are shown by color, the colored population in 1920, constituted the following percentages of the total population: Atlanta 31, Baltimore 15, Birmingham 30, Dallas 15, Fort Worth 14, Houston 25, Indianapolis 11, Kansas City, Kans., 14, Knoxville 15, Louisville 17, Memphis 38, Nashville 30, New Orleans 26, Richmond 32, and Washington, D. C., 25.

^a Based upon telegraphic reports received each week from city health officers.

^b Allowance has been made for the extra day, which must be added to the 52 weeks to give a period of 365 days.

^c Infant mortality rate is based upon deaths under 1 year as returned each week and estimated births 1929.

^d Based upon deaths which occurred within the calendar year.

^e Infant mortality rate for the cities in the birth registration area appearing in the summary.

^f Mortality rates are omitted, pending the establishment of more satisfactory estimates of population.

^g Cities with no infant mortality rate are not in the registration area for births.

^h Not available.

Number of deaths, death rates, and infant mortality in 77 large cities in 1929 and comparison with 1928—Continued

City	Total deaths	Death rate	Deaths under 1 year	Provisional infant mortality rate, 1929	Infant mortality rate, 1928	Mortality data for calendar year, 1928		
						Total deaths	Death rate	Deaths under 1 year
Des Moines.....	1,617	10.7	174	45	52	1,725	11.4	144
Detroit.....	16,667	12.1	2,319	69	77	16,061	11.6	2,519
Duluth.....	1,161	10.0	62	32	64	1,197	10.2	132
El Paso.....	1,934	16.5	383			2,044	17.4	401
Erie.....	1,372		130	53	60	1,337		148
Fall River.....	1,540	11.5	153	67	68	1,417	10.6	185
Flint.....	1,590	10.7	296	66	86	1,523	10.2	381
Fort Worth.....	1,943	11.4	221			1,865	10.9	190
White.....	1,595	(A)	176			1,489	(A)	152
Colored.....	348	(A)	45			376	(A)	44
Grand Rapids.....	1,688	10.3	186	54	54	1,787	10.9	188
Houston.....	3,567		846			3,409		407
White.....	2,454	(A)	250			2,373	(A)	311
Colored.....	1,113	(A)	96			1,036	(A)	96
Indianapolis.....	5,372	14.1	431	62	66	5,338	14.0	438
White.....	4,454	(A)	350	58	62	4,481	(A)	358
Colored.....	918	(A)	81	84	94	857	(A)	80
Jersey City.....	3,896	12.0	402	67	85	3,909	12.2	529
Kansas City, Kans.....	1,558	13.2	140	64	74	1,712	14.5	175
White.....	1,143	(A)	101	51	71	1,325	(A)	147
Colored.....	415	(A)	39	163	89	387	(A)	28
Kansas City, Mo.....	5,426	13.9	467	70	76	5,593	14.3	478
Knoxville.....	1,426	13.6	169	76	92	1,495	14.2	212
White.....	1,110	(A)	143	71	55	1,167	(A)	178
Colored.....	316	(A)	26	124	153	328	(A)	34
Los Angeles.....	13,482		1,073	63	66	13,658		1,158
Louisville.....	4,654	14.2	353	59	81	4,637	14.1	499
White.....	3,592	(A)	275	52	75	3,520	(A)	402
Colored.....	1,062	(A)	78	109	129	1,108	(A)	97
Lowell.....	1,424		137	62	77	1,402		168
Lynn.....	1,151	11.0	99	48	68	1,177	11.2	130
Memphis.....	3,538	20.2	419	96	90	3,747	19.7	386
White.....	2,008	(A)	214	76	67	1,931	(A)	186
Colored.....	1,530	(A)	205	133	130	1,816	(A)	200
Milwaukee.....	6,110	11.3	883	86	71	6,132	11.3	843
Minneapolis.....	4,944	10.9	366	46	51	4,946	10.8	420
Nashville.....	2,711	19.5	317	94	100	2,622	18.8	322
White.....	1,708	(A)	222	88	88	1,585	(A)	216
Colored.....	1,003	(A)	95	116	138	1,037	(A)	106
New Bedford.....	1,348		132	65	79	1,343		188
New Haven.....	2,174	11.6	130	49	57	2,204	11.7	204
New Orleans.....	8,043	18.8	748	83	78	8,242	19.2	792
White.....	4,630	(A)	353	60	62	4,923	(A)	416
Colored.....	3,413	(A)	395	128	111	3,319	(A)	376
New York.....	77,244	12.9	7,266	59	65	78,149	13.0	8,258
Bronx Borough.....	10,114	10.7	851	38	61	10,768	11.3	1,064
Brooklyn Borough.....	25,957	11.3	2,721	56	62	27,034	11.7	3,145
Manhattan Borough.....	30,796	17.6	2,880	91	69	28,955	16.5	2,910
Queens Borough.....	7,935	9.3	647	36	76	9,322	10.9	970
Richmond Borough.....	2,442	16.2	167	60	59	2,070	13.7	169
Newark, N. J.....	5,597	11.9	569	57	61	5,495	11.6	600
Oakland.....	3,150	11.5	188	44	47	3,174	11.6	214
Oklahoma City.....	1,927		206	78	68	1,721		175
Omaha.....	2,853	12.8	250	55	57	2,884	12.9	252
Paterson.....	1,842	12.7	167	50	57	1,836	12.7	169
Philadelphia.....	25,517	12.4	2,185	62	71	26,883	13.0	2,610
Pittsburgh.....	9,799	14.6	1,097	77	75	10,189	15.1	1,141
Portland, Oreg.....	3,765		107	39	43	3,659		190
Providence.....	3,621	12.7	356	63	63	3,517	12.3	376
Richmond.....	2,951	15.2	292	83	85	2,812	14.5	313
White.....	1,707	(A)	127	55	59	1,601	(A)	142
Colored.....	1,244	(A)	165	138	133	1,211	(A)	171
Rochester.....	3,950	12.1	360	61	61	3,989	12.2	372
St. Louis.....	11,891	14.1	828	52	63	12,126	14.3	939
St. Paul.....	2,850		179	35	54	3,044		275
Salt Lake City.....	1,787	13.0	185	56	58	1,753	12.7	192
San Antonio.....	3,649	16.8	609			3,591	16.5	669
San Diego.....	2,156		128	52	47	2,241		125
San Francisco.....	8,020	13.7	379	80	45	8,268	14.1	372
Schenectady.....	1,165	12.4	122	73	74	1,068	11.4	121
Seattle.....	4,029	10.5	219	42	43	3,979	10.4	212
Somerville.....	949	9.8	92	58	75	1,050	10.2	138

/ Mortality rates are omitted, pending the establishment of more satisfactory estimates of population.

* Cities with no infant mortality rate are not in the registration area of births.

† Not available.

Number of deaths, death rates, and infant mortality in 77 large cities in 1929 and comparison with 1928—Continued

City	Total deaths	Death rate	Deaths under 1 year	Provisional infant mortality rate, 1929	Infant mortality rate, 1928	Mortality data for calendar year, 1928		
						Total deaths	Death rate	Deaths under 1 year
Spokane.....	1,486	13.7	99	50	48	1,607	14.7	100
Springfield, Mass.....	1,876	12.6	174	53	59	1,716	11.5	176
Syracuse.....	2,636	13.3	232	55	59	2,702	13.6	254
Tacoma.....	1,239	11.2	56	28	37	1,293	11.7	77
Toledo.....	3,947	12.6	395	69	65	8,031	12.6	366
Trenton.....	2,091	15.1	200	72	83	1,839	13.2	232
Utica.....	1,578	15.2	125	68	68	1,626	15.6	137
Washington, D. C.....	7,412	13.5	634	71	65	7,239	13.1	582
White.....	4,576	(A)	290	48	46	4,472	(A)	280
Colored.....	2,836	(A)	344	117	107	2,767	(A)	302
Waterbury.....	924		123	61	72	1,099		148
Wilmington, Del.....	1,441	11.2	156	68	71	1,518	11.8	152
Worcester.....	2,448	12.4	212	53	62	2,665	13.5	246
Yonkers.....	1,261	10.4	143	66	57	1,198	9.9	137

/ Mortality rates are omitted, pending the establishment of more satisfactory estimates of population.

A Not available.

DEATHS DURING WEEK ENDED JANUARY 4, 1930

Summary of information received by telegraph from industrial insurance companies for the week ended January 4, 1930, and corresponding week of 1929. (From the Weekly Health Index, January 10, 1930, issued by the Bureau of the Census, Department of Commerce)

	Week ended Jan. 4, 1930	Corresponding week, 1929
Policies in force.....	75, 180, 975	72, 479, 946
Number of death claims.....	13, 985	15, 548
Death claims per 1,000 policies in force, annual rate	9.7	11.2

Deaths from all causes in certain large cities of the United States during the week ended January 4, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index, January 10, 1930, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Jan. 4, 1930		Annual death rate per 1,000, corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Jan. 4, 1930 ¹
	Total deaths	Death rate ¹		Week ended Jan. 4, 1930	Corresponding week, 1929	
Total (64 cities).....	7,888	13.9	19.5	726	968	164
Akron.....	47			5	8	46
Albany ⁴	28	12.1	20.4	1	4	22
Atlanta.....	89	18.2	26.2	13	8	137
White.....	39			4	4	127
Colored.....	50	(5)	(5)	9	4	143
Baltimore ⁴	242	15.2	20.5	21	27	71
White.....	176			13	18	56
Colored.....	66	(5)	(5)	8	9	125
Birmingham.....	87	20.4	47.3	10	32	93
White.....	47			2	13	31
Colored.....	40	(5)	(5)	8	19	189
Boston.....	252	16.4	16.0	34	22	96

Footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended January 4, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index, January 10, 1930, issued by the Bureau of the Census, Department of Commerce)—Continued

City	Week ended Jan. 4, 1930		Annual death rate per 1,000, corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Jan. 4, 1930 ¹
	Total deaths	Death rate ¹		Week ended Jan. 4, 1930	Corresponding week, 1929	
Bridgeport.....	42			6	6	103
Buffalo.....	183	17.2	20.2	28	19	125
Cambridge.....	36	14.9	13.3	4	4	74
Camden.....	31	11.9	25.1	5	10	91
Canton.....	33	14.7	32.2	4	8	99
Chicago.....	710	11.7	17.4	46	98	41
Cincinnati.....	166			14	23	83
Cleveland.....	224	11.6	21.8	23	30	69
Columbus.....	89	15.5	29.4	9	11	88
Dallas.....	73	17.5	25.4	6	16	
White.....	57			6	13	
Colored.....	16	(¹)	(¹)	0	3	
Dayton.....	37	10.5	14.5	6	7	89
Denver.....	70	12.4	20.4	6	10	63
Des Moines.....	27	9.3	12.7	0	2	0
Detroit.....	288	10.9	21.8	38	70	59
Duluth.....	25	11.2	11.6	3	0	81
El Paso.....	43	19.0	29.7	8	10	
Erie.....	17			1	4	21
Fall River.....	28	10.9	20.2	3	4	09
Flint.....	24	8.4	17.2	4	13	47
Fort Worth.....	38	11.6	25.1	5	7	
White.....	31			4	7	
Colored.....	7	(¹)	(¹)	1	0	
Grand Rapids.....	41	13.0	15.3	3	6	46
Houston.....	96			10	10	
White.....	73			10	8	
Colored.....	24	(¹)	(¹)	0	2	
Indianapolis.....	110	15.0	19.0	4	9	30
White.....	79			2	6	17
Colored.....	31	(¹)	(¹)	2	3	108
Jersey City.....	83	13.3	15.5	11	13	96
Kansas City, Kans.....	23	10.1	19.4	2	2	47
White.....	18			2	0	53
Colored.....	5	(¹)	(¹)	0	2	0
Kansas City, Mo.....	94	12.5	18.2	9	14	70
Knoryville.....	17	8.4	17.4	1	2	23
White.....	12			0	1	0
Colored.....	5	(¹)	(¹)	1	1	247
Los Angeles.....	311			21	21	64
Louisville.....	101	16.0	20.2	11	3	96
White.....	78			7	3	69
Colored.....	23	(¹)	(¹)	4	0	290
Lowell.....	22			1	2	24
Lynn.....	16	7.9	11.4	1	1	25
Memphis.....	79	21.7	40.4	6	16	71
White.....	46			3	10	55
Colored.....	33	(¹)	(¹)	3	6	101
Milwaukee.....	131	12.8	19.0	22	23	111
Minneapolis.....	122	14.0	19.7	10	8	65
Nashville.....	63	23.5	25.5	6	5	93
White.....	37			4	3	82
Colored.....	26	(¹)	(¹)	2	2	127
New Bedford.....	29			1	0	26
New Haven.....	45	12.5	10.6	2	4	39
New Orleans.....	191	23.2	40.1	14	23	81
White.....	117			8	12	71
Colored.....	74	(¹)	(¹)	6	11	101
New York.....	1,040	14.2	14.8	157	147	66
Bronx Borough.....	190	10.4	12.1	16	17	38
Brooklyn Borough.....	557	12.6	13.4	65	59	89
Manhattan Borough.....	669	19.9	20.1	60	60	98
Queens Borough.....	191	11.7	11.0	16	10	46
Richmond Borough.....	33	11.4	14.9	0	1	0
Newark, N. J.....	137	15.1	16.4	14	9	73
Oakland.....	79	15.0	15.8	6	3	72
Oklahoma City.....	24			3	3	11
Omaha.....	64	15.0	16.4	1	5	52
Paterson.....	39	14.0	15.9	3	3	62
Philadelphia.....	537	13.6	21.3	42	77	

Footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended January 4, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index, January 10, 1930, issued by the Bureau of the Census, Department of Commerce)—Continued

City	Week ended Jan. 4, 1930		Annual death rate per 1,000, corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Jan. 4, 1930 ²
	Total deaths	Death rate ¹		Week ended Jan. 4, 1930	Corresponding week, 1929	
Pittsburgh.....	106	12.8	45.4	23	36	84
Portland, Oreg.....	88			2	6	25
Providence.....	83	15.1	17.2	9	6	83
Richmond.....	55	14.8	26.4	6	10	89
White.....	34			3	3	67
Colored.....	21	(³)	(³)	3	7	131
Rochester.....	87	13.8	13.2	9	6	80
St. Louis.....	264	16.2	19.4	5	19	16
St. Paul.....	68			0	2	0
Salt Lake City ⁴	31	11.7	12.1	1	3	16
San Antonio.....	97	23.2	19.7	12	11	
San Diego.....	63			3	8	63
San Francisco.....	142	12.7	17.0	7	8	48
Schenectady.....	22	12.3	21.9	2	5	62
Seattle.....	82	11.2	17.7	5	5	50
Somerville.....	23	11.7	12.2	1	7	33
Spokane.....	31	14.8	14.4	3	0	78
Springfield, Mass.....	41	14.3	16.4	2	3	32
Syracuse.....	51	13.3	23.3	7	7	87
Toledo.....	71	11.8	18.7	3	9	27
Trenton.....	32	12.0	21.1	0	4	6
Utica.....	38	19.0	20.6	5	1	142
Washington, D. C.....	182	15.3	18.1	13	21	75
White.....	109			7	12	60
Colored.....	53	(³)	(³)	6	9	106
Waterbury.....	18			3	1	77
Wilmington, Del.....	22	8.9	20.3	2	9	45
Worcester.....	65	17.2	15.3	7	4	91
Yonkers.....	21	9.0	19.8	2	4	48
Youngstown.....	30	9.0	18.6	0	5	0

¹ Annual rate per 1,000 population.

² Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.

³ Data for 72 cities.

⁴ Deaths for week ended Friday.

⁵ In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population. Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 18; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 26; Richmond, 32, and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended January 4, 1930, and January 5, 1929

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended January 4, 1930, and January 5, 1929

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Jan. 4, 1930	Week ended Jan. 5, 1929	Week ended Jan. 4, 1930	Week ended Jan. 5, 1929	Week ended Jan. 4, 1930	Week ended Jan. 5, 1929	Week ended Jan. 4, 1930	Week ended Jan. 5, 1929
New England States.								
Maine.....	1	6	8	493	13	615	0	0
New Hampshire.....	3	3		17	5	55	0	0
Vermont.....				280	13	4	0	0
Massachusetts.....	108	117	11	838	288	585	6	1
Rhode Island.....	16	15	10	179	1	48	2	1
Connecticut.....	12	28	6	790	64	420	2	0
Middle Atlantic States.								
New York.....	129	314	120	1,956	314	947	18	14
New Jersey.....	133	137	32	1,923	105	146	2	8
Pennsylvania.....	353	367			600	1,300	23	7
East North Central States.								
Ohio.....	98	92	24	5,010	538	358	7	6
Indiana.....	34	54		1,129	110	117	29	0
Illinois.....	224	150	31	2,194	289	330	10	21
Michigan.....	79	105		8,948	210	43	14	7
Wisconsin.....	20	20	35	7,787	493	139	1	6
West North Central States.								
Minnesota.....	18	24	2	1,336	151	56	1	2
Iowa.....	17	8		1,447	152		1	0
Missouri.....	43	66	19	21,978	6	74	9	21
North Dakota.....	7	9		2,528	47	16	4	11
South Dakota.....	5	4		36	3	41	1	0
Nebraska.....	13	20		1,022	211	10	2	2
Kansas.....	24	10	5	4,915	137	11	2	1
South Atlantic States:								
Delaware.....		1		233		8	0	0
Maryland.....	36	26	42	3,610	6	59	0	3
District of Columbia.....	12	19	2	658	3	1	0	1
Virginia.....								
West Virginia.....	7	31	30	8,559	17	60	0	0
North Carolina.....	71	49	24		10	13	2	0
South Carolina.....	31	26	1,234	9,428		2	17	0
Georgia.....	30	17	156	11,711	39	23	4	0
Florida.....	9	16	2	953	13	10	0	0
East South Central States:								
Kentucky.....	12	9		9,231	92		0	0
Tennessee.....	13	21	205	19,413	41	1	3	1
Alabama.....	32	36	173	18,673	7	32	0	0
Mississippi.....	29	16		18,884			4	
West South Central States:								
Arkansas.....	15	16	108	4,327	196	22	3	0
Louisiana.....	22	14	34	3,152	30	114	5	2
Oklahoma.....	51	33	159	9,852	32		1	5
Texas.....	48	79	45	6,019	8	43	0	0
Mountain States:								
Montana.....	2	3		1,012	10	75	3	8
Idaho.....	1			25	43		2	2
Wyoming.....	3	1		9	5	4	2	0

¹ New York City only.

² Figures for 1929 are for 2 weeks.

³ Week ended Friday.

⁴ Figures for 1929 are exclusive of Oklahoma City and Tulsa.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended January 4, 1930, and January 5, 1929—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Jan. 4, 1930	Week ended Jan. 5, 1929	Week ended Jan. 4, 1930	Week ended Jan. 5, 1929	Week ended Jan. 4, 1930	Week ended Jan. 5, 1929	Week ended Jan. 4, 1930	Week ended Jan. 5, 1929
Mountain States—Continued.								
Colorado.....	9	15	1	532	18	9	1	7
New Mexico.....	17	12	-----	2,249	5	2	1	0
Arizona.....	13	8	10	408	4	1	6	1
Utah ¹	3	1	4	5	60	1	4	2
Pacific States:								
Washington.....	8	13	12	1,127	77	28	7	7
Oregon.....	13	21	59	1,374	22	53	1	0
California.....	80	49	53	1,254	178	22	12	11
Division and State	Polomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Jan. 4, 1930	Week ended Jan. 5, 1929	Week ended Jan. 4, 1930	Week ended Jan. 5, 1929	Week ended Jan. 4, 1930	Week ended Jan. 5, 1929	Week ended Jan. 4, 1930	Week ended Jan. 5, 1929
New England States:								
Maine.....	0	0	41	41	0	1	3	3
New Hampshire.....	0	0	14	18	0	0	0	0
Vermont.....	0	0	14	9	6	5	0	0
Massachusetts.....	1	2	298	297	0	0	4	2
Rhode Island.....	0	0	28	20	0	0	0	0
Connecticut.....	0	0	84	46	0	0	0	0
Middle Atlantic States:								
New York.....	2	5	385	410	9	0	4	14
New Jersey.....	1	1	203	119	0	0	5	1
Pennsylvania ²	3	1	773	628	3	0	29	14
East North Central States:								
Ohio.....	2	2	312	250	215	30	9	11
Indiana.....	0	0	154	81	204	56	2	1
Illinois.....	2	0	515	342	135	57	0	10
Michigan.....	0	0	240	211	64	16	0	7
Wisconsin.....	0	1	72	143	6	9	6	5
West North Central States:								
Minnesota.....	0	0	100	121	4	0	0	0
Iowa.....	0	0	98	112	90	18	0	0
Missouri.....	0	0	111	75	21	35	6	3
North Dakota.....	1	0	37	48	15	2	0	0
South Dakota.....	0	0	23	45	18	33	3	3
Nebraska.....	0	0	58	73	35	35	1	3
Kansas.....	0	0	132	94	29	25	3	2
South Atlantic States:								
Delaware.....	0	0	8	3	0	0	2	0
Maryland ¹	0	0	64	81	0	0	2	2
District of Columbia.....	0	0	16	19	0	0	0	1
Virginia.....	-----	-----	-----	-----	1	-----	-----	-----
West Virginia.....	0	0	31	51	7	13	8	0
North Carolina.....	0	0	65	64	11	15	10	0
South Carolina.....	2	0	21	14	3	1	8	8
Georgia.....	1	0	40	29	0	0	5	1
Florida.....	0	0	28	14	0	0	3	2
East South Central States:								
Kentucky.....	0	2	34	79	40	11	2	2
Tennessee.....	1	0	34	37	8	3	5	2
Alabama.....	0	0	42	37	2	4	2	2
Mississippi.....	0	0	8	12	3	0	5	1
West South Central States:								
Arkansas.....	0	0	15	19	14	0	1	0
Louisiana.....	0	0	14	20	0	4	7	3
Oklahoma ¹	0	0	39	26	88	12	10	5
Texas.....	0	0	32	88	31	47	4	5
Mountain States:								
Montana.....	0	0	40	55	11	15	1	0
Idaho.....	0	0	14	0	8	22	1	1
Wyoming.....	0	0	5	3	12	4	0	0
Colorado.....	0	0	35	33	15	22	1	1
New Mexico.....	1	0	5	9	2	4	2	4
Arizona.....	0	0	14	7	10	5	1	0
Utah ¹	0	0	10	9	2	6	1	2
Pacific States:								
Washington.....	1	0	60	18	69	67	1	2
Oregon.....	0	0	20	13	24	34	1	0
California.....	2	1	258	190	53	12	4	6

¹ Figures for 1929 are for 2 weeks.

² Week ended Friday.

⁴ Figures for 1929 are exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

Colorado.....	8	34	2	24	1	96	113	33
Michigan.....	57	492	13	658	10	987	282	32
Mississippi.....	1	324	3,276	159	1	137	1	44
Montana.....	12	8	6	279	1	165	73	24
North Carolina.....	7	757	31	15	89	11	508	15
Oklahoma ¹	9	397	378	72	18	3	295	92
Pennsylvania.....	29	869	1	1,526	1	19	1,411	10
South Dakota.....		19		21		0	79	234
Virginia.....	5	435	957	127	9	18	408	113
Wisconsin.....	10	123	66	1,696		3	390	119
								81

¹ Exclusive of Oklahoma City and Tulsa.

November, 1929		Cases		Mumps—Continued.		Cases	
Actinomycosis				Oklahoma ¹			2
Pennsylvania.....		1		Pennsylvania.....			758
Anthrax				South Dakota.....			9
Pennsylvania.....		1		Wisconsin.....			238
Chicken pox:				Ophthalmia neonatorum:			
Colorado.....		539		Colorado.....			1
Michigan.....		1,854		Mississippi.....			24
Mississippi.....		584		North Carolina.....			1
Montana.....		108		Pennsylvania.....			10
North Carolina.....		478		Paratyphoid fever			
Oklahoma ¹		130		North Carolina.....			1
Pennsylvania.....		3,534		Puerperal fever.			
South Dakota.....		117		Mississippi.....			43
Virginia.....		468		Pennsylvania.....			10
Wisconsin.....		1,701		Rabies in map.			
Dengue				Michigan.....			1
Mississippi.....		35		Pennsylvania.....			3
Dysentery.				Septic sore throat.			
Colorado.....		6		Michigan.....			17
Mississippi (amebic).....		25		Montana.....			6
Mississippi (bacillary).....		293		North Carolina.....			22
Oklahoma ¹		9		Oklahoma ¹			37
Pennsylvania.....		2		Tetanus			
Dysentery and diarrhea				Pennsylvania.....			8
Virginia.....		92		Trachoma			
German measles:				Mississippi.....			3
Colorado.....		2		Montana.....			143
North Carolina.....		7		Oklahoma ¹			4
Pennsylvania.....		38		Pennsylvania.....			2
Hookworm disease.				South Dakota.....			6
Mississippi.....		214		Trichinosis			
Oklahoma ¹		1		Pennsylvania.....			2
Iethargic encephalitis:				Tularaemia			
Michigan.....		5		Colorado.....			1
Pennsylvania.....		4		Virginia.....			6
Wisconsin.....		1		Undulant fever:			
Mumps:				Colorado.....			1
Colorado.....		53		Oklahoma ¹			1
Michigan.....		358		Pennsylvania.....			2
Mississippi.....		90		Wisconsin.....			1
Montana.....		225					

¹ Exclusive of Oklahoma City and Tulsa.

¹ Exclusive of Oklahoma City and Tulsa.

Vincent's angina:	Cases	Whooping cough—Continued.	Cases
Colorado.....	5	North Carolina.....	771
Oklahoma ¹	3	Oklahoma ¹	55
Whooping cough:		Pennsylvania.....	1,324
Colorado.....	54	South Dakota.....	18
Michigan.....	458	Virginia.....	791
Mississippi.....	682	Wisconsin.....	666
Montana.....	12		

¹ Exclusive of Oklahoma City and Tulsa.¹ Exclusive of Oklahoma City and Tulsa.

RECIPROCAL NOTIFICATIONS

Notifications regarding communicable diseases sent during the month of November, 1929, by departments of health of certain States to other State health departments

Disease	Connecticut	Illinois	Minnesota	New York	Washington
Diphtheria.....				1	
Gonorrhea.....			3		
Scarlet fever.....				1	
Smallpox.....		1			
Syphilis.....			2		
Tuberculosis.....	1	14	66		
Typhoid fever.....		3	3		1
Whooping cough.....				1	

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 97 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 31,390,000. The estimated population of the 90 cities reporting deaths is more than 29,815,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended December 28, 1929, and December 29, 1928

	1929	1928	Estimated expectancy
<i>Cases reported</i>			
Diphtheria:			
45 States.....	1,588	1,760	
97 cities.....	722	786	1,059
Measles:			
42 States.....	2,962	4,028	
97 cities.....	556	953	
Meningococcus meningitis:			
45 States.....	199	162	
97 cities.....	91	87	
Pollomyelitis: 45 States.....	23	14	
Scarlet fever:			
45 States.....	3,518	3,034	
97 cities.....	1,309	1,078	1,271
Smallpox:			
45 States.....	1,216	537	
97 cities.....	107	25	45
Typhoid fever:			
45 States.....	132	143	
97 cities.....	24	29	41
<i>Deaths reported</i>			
Influenza and pneumonia: 90 cities.....	931	2,783	
Smallpox:			
90 cities.....	1	0	
Barre, Vt.....	1	0	

City reports for week ended December 28, 1929

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1920 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Population July 1, 1928, estimated	Chick- en pox, cases re-ported	Diphtheria		Influenza		Meas- les, cases re-ported	Mumps, cases re-ported	Pneu- monia, deaths re-ported
			Cases, esti- mated ex-pectancy	Cases re-ported	Cases re-ported	Deaths re-ported			
NEW ENGLAND									
Maine:									
Portland	78,600	14	2	0	1	0	1	1	3
New Hampshire:									
Concord	(1)	0	0	1	-----	0	3	0	2
Vermont:									
Barre	(1)	0	0	0	-----	0	0	0	0
Burlington	(1)	0	0	0	-----	0	0	0	0
Massachusetts:									
Boston	799,200	51	48	24	1	1	19	36	16
Fall River	134,300	4	5	1	-----	0	0	0	1
Springfield	149,800	14	4	15	-----	0	4	0	2
Worcester	197,000	24	6	2	1	1	12	1	0
Rhode Island:									
Pawtucket	73,100	0	2	0	-----	0	0	0	1
Providence	286,300	2	11	5	-----	1	1	0	6
Connecticut:									
Bridgeport	(1)	5	8	3	-----	1	0	0	4
Hartford	172,300	-----	8	-----	-----	-----	-----	-----	-----
New Haven	187,900	22	2	0	-----	0	0	0	4
MIDDLE ATLANTIC									
New York:									
Buffalo	555,800	23	19	7	-----	0	3	4	22
New York	6,017,500	184	191	121	28	14	30	56	195
Rochester	328,200	10	10	3	1	0	1	1	7
Syracuse	199,300	11	4	1	-----	0	0	9	1
New Jersey:									
Camden	135,400	1	6	4	-----	0	0	0	6
Newark	473,600	72	19	39	6	0	25	10	4
Trenton	139,000	2	4	6	-----	1	6	0	4
Pennsylvania:									
Philadelphia	2,064,200	136	84	23	10	8	21	16	56
Pittsburgh	673,800	35	25	30	-----	4	19	1	24
Reading	115,400	18	4	0	-----	0	0	1	2
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	413,700	24	15	3	2	2	1	0	16
Cleveland	1,010,300	118	43	13	5	1	8	4	15
Columbus	299,000	16	8	1	-----	2	1	0	3
Toledo	313,200	66	13	1	1	1	237	5	9
Indiana:									
Fort Wayne	105,300	6	5	3	-----	1	0	0	7
Indianapolis	382,100	35	9	2	-----	0	15	4	19
South Bend	80,100	1	1	1	-----	0	0	0	0
Terre Haute	73,500	3	2	1	-----	0	0	0	0
Illinois:									
Chicago	3,157,400	123	100	170	10	8	9	17	82
Springfield	67,200	8	2	0	1	1	0	0	1
Michigan:									
Detroit	1,378,900	71	64	64	3	2	91	18	26
Flint	148,800	33	6	0	-----	0	1	0	2
Grand Rapids	164,200	1	4	3	-----	0	0	0	1

¹ No estimate of population made.

City reports for week ended December 28, 1929—Continued

Division, State, and city	Population July 1, 1928, estimated	Chick- en pox, cases re- ported	Diphtheria		Influenza		Meas- les, cases re- ported	Mumps, cases re- ported	Pneu- monia, deaths re- ported
			Cases, esti- mated expect- ancy	Cases re- ported	Cases re- ported	Deaths re- ported			
EAST NORTH CENTRAL— continued									
Wisconsin:									
Kenosha.....	56,500	5	2	0	-----	0	0	0	0
Milwaukee.....	544,200	144	23	0	3	3	3	9	6
Racine.....	74,400	10	3	0	-----	0	2	0	0
Superior.....	(1)	2	0	0	-----	0	21	0	4
WEST NORTH CENTRAL									
Minnesota:									
Duluth.....	116,800	3	1	0	-----	1	24	0	2
Minneapolis.....	455,900	137	20	4	-----	1	2	2	14
St. Paul.....	(1)	12	13	0	-----	2	6	2	23
Iowa:									
Davenport.....	(1)	3	1	0	-----	-----	0	0	-----
Des Moines.....	151,900	0	4	0	-----	-----	9	0	-----
Sioux City.....	80,000	6	1	0	-----	-----	0	4	-----
Waterloo.....	37,100	9	0	1	-----	-----	33	0	-----
Missouri:									
Kansas City.....	391,000	18	9	6	-----	0	0	2	7
St. Joseph.....	78,500	1	2	0	-----	0	0	0	3
St. Louis.....	848,100	10	47	16	2	1	1	10	-----
North Dakota:									
Fargo.....	(1)	8	0	0	-----	0	0	1	0
South Dakota:									
Aberdeen.....	(1)	8	0	0	-----	-----	0	2	-----
Sioux Falls.....	(1)	0	0	0	-----	-----	0	0	-----
Nebraska:									
Omaha.....	222,800	8	6	7	-----	0	7	1	4
Kansas:									
Topeka.....	62,800	33	2	0	-----	0	1	5	0
Wichita.....	99,300	13	4	1	-----	0	2	0	5
SOUTH ATLANTIC									
Delaware:									
Wilmington.....	128,500	11	2	3	-----	0	0	0	4
Maryland:									
Baltimore.....	830,400	69	38	14	3	4	1	2	24
Cumberland.....	(1)	0	1	1	-----	0	0	0	0
Frederick.....	(1)	1	1	0	-----	0	0	0	0
District of Columbia:									
Washington.....	552,000	24	19	3	-----	0	0	0	15
Virginia:									
Lynchburg.....	38,600	1	3	0	-----	0	11	5	3
Norfolk.....	184,200	1	3	0	-----	0	0	0	13
Richmond.....	194,400	3	8	7	-----	0	1	1	7
Roanoke.....	64,600	0	2	5	-----	2	0	0	0
West Virginia:									
Charleston.....	55,200	16	1	2	-----	0	0	0	1
Wheeling.....	(1)	1	2	0	1	0	3	0	2
North Carolina:									
Raleigh.....	(1)	2	1	0	-----	0	0	0	0
Wilmington.....	39,100	0	1	3	-----	0	0	0	0
Winston-Salem.....	80,000	4	1	1	2	0	0	3	1
South Carolina:									
Charleston.....	75,900	0	1	0	57	0	0	0	2
Columbia.....	50,600	6	1	0	-----	1	0	0	7
Georgia:									
Atlanta.....	255,100	7	4	0	20	6	0	2	11
Brunswick.....	(1)	0	0	0	-----	0	0	0	0
Savannah.....	99,900	7	1	2	5	1	0	0	1
Florida:									
Miami.....	156,700	1	3	1	-----	0	0	1	4
Tampa.....	113,400	0	2	1	-----	0	0	1	3
EAST SOUTH CENTRAL									
Kentucky:									
Covington.....	59,000	0	1	5	-----	0	0	0	5

¹ No estimate of population made.

City reports for week ended December 28, 1929—Continued

Division, State, and city	Population July 1, 1928, estimated	Chick- en pox, cases re-ported	Diphtheria		Influenza		Meas- les, cases re-ported	Mumps, cases re-ported	Pneu- monia, deaths re-ported
			Cases, esti- mated expect-ancy	Cases re-ported	Cases re-ported	Deaths re-ported			
EAST SOUTH CENTRAL— continued									
Tennessee									
Memphis	190,200	6	7	4	-----	0	0	0	7
Nashville	139,600	2	2	0	-----	1	0	0	3
Alabama									
Birmingham	222,400	5	5	6	16	3	0	0	7
Mobile	69,600	2	1	1	2	0	0	0	4
Montgomery	63,100	0	1	0	1	-----	0	0	-----
WEST SOUTH CENTRAL									
Arkansas									
Fort Smith	(1)	0	1	3	-----	-----	0	0	-----
Little Rock	79,200	0	1	0	-----	1	0	0	3
Louisiana									
New Orleans	429,400	1	12	23	13	16	9	0	20
Shreveport	81,300	0	1	0	-----	0	0	2	7
Oklahoma									
Oklahoma City	(1)	6	3	0	2	3	1	0	8
Tulsa	170,500	2	3	4	-----	-----	3	0	-----
Texas									
Dallas	217,800	25	13	12	1	0	14	0	12
Fort Worth	170,600	1	5	3	-----	3	0	0	11
Galveston	50,600	0	1	1	-----	0	0	0	2
Houston	(1)	5	6	4	-----	2	0	1	8
San Antonio	218,100	1	4	2	-----	5	0	0	8
MOUNTAIN									
Montana									
Billings	(1)	0	0	0	-----	0	0	9	4
Great Falls	(1)	6	1	0	-----	0	0	30	2
Helena	(1)	0	0	0	-----	0	0	5	1
Missoula	(1)	0	0	0	-----	0	2	2	1
Idaho									
Boise	(1)	2	0	0	-----	0	0	0	3
Colorado									
Denver	294,200	30	11	4	-----	3	2	16	9
Pueblo	44,200	14	2	0	-----	0	0	5	1
New Mexico									
Albuquerque	(1)	1	1	1	-----	0	0	0	1
Utah									
Salt Lake City	138,000	33	3	0	-----	0	5	5	2
Nevada									
Reno	(1)	0	0	0	-----	0	0	0	1
PACIFIC									
Washington									
Seattle	383,200	33	5	5	-----	-----	0	11	-----
Spokane	100,100	18	2	1	-----	-----	0	0	-----
Tacoma	110,500	9	3	3	-----	0	1	0	2
Oregon									
Portland	(1)	11	11	4	-----	1	0	7	8
Salem	(1)	0	0	1	3	0	0	1	0
California									
Los Angeles	(1)	30	43	17	19	2	6	12	25
Sacramento	75,700	3	3	0	2	2	2	20	2
San Francisco	585,300	44	21	8	7	2	126	15	4

¹ No estimate of population made.

City reports for week ended December 28, 1929—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culosis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
NEW ENGLAND											
Maine:											
Portland	2	5	0	0	0	1	0	0	0	0	25
New Hampshire:											
Concord	1	1	0	0	0	0	0	0	0	0	9
Vermont:											
Barre	0	0	0	0	1	4	0	0	0	2	7
Burlington	1	2	0	0	0	0	0	0	0	0	7
Massachusetts:											
Boston	70	68	0	0	0	10	1	0	0	43	220
Fall River	3	1	0	0	0	2	0	0	0	0	24
Springfield	9	12	0	0	0	2	0	0	0	12	40
Worcester	12	13	0	0	0	1	0	0	0	2	43
Rhode Island:											
Pawtucket	1	8	0	0	0	0	0	0	0	0	12
Providence	8	13	0	0	0	2	0	0	0	5	70
Connecticut:											
Bridgport	10	5	0	0	0	1	0	0	0	0	27
Hartford	6		0				0				
New Haven	6	2	0	0	0	1	0	0	0	6	38
MIDDLE ATLANTIC											
New York:											
Buffalo	26	20	1	0	0	7	1	0	0	12	152
New York	218	143	0	0	0	83	10	4	2	23	1,547
Rochester	12	5	0	0	0	4	1	0	0	0	61
Syracuse	12	11	0	0	0	3	0	0	0	4	51
New Jersey:											
Camden	6	2	0	0	0	0	0	1	0	0	37
Newark	22	25	0	0	0	7	0	1	0	9	92
Trenton	3	13	0	0	0	4	0	0	0	0	45
Pennsylvania:											
Philadelphia	83	10	0	0	0	31	3	0	0	21	446
Pittsburgh	37	28	0	0	0	12	1	0	0	5	167
Reading	3	4	0	0	0	0	0	0	0	8	25
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	16	22	0	0	0	5	1	0	0	1	121
Cleveland	40	35	0	0	0	15	1	0	0	44	201
Columbus	11	15	1	0	0	5	0	0	1	4	74
Toledo	14	5	0	2	0	5	0	0	0	0	90
Indiana:											
Fort Wayne	4	2	0	18	0	3	1	0	0	0	39
Indianapolis	10	15	7	5	0	8	0	0	0	6	138
South Bend	3	1	1	0	0	0	0	0	0	0	13
Terre Haute	3	4	1	0	0	0	0	0	0	0	18
Illinois:											
Chicago	122	239	1	2	0	37	4	1	0	5	777
Springfield	2	0	0	0	0	0	0	0	0	2	21
Michigan:											
Detroit	94	106	2	2	0	22	2	0	0	41	278
Flint	12	9	0	4	0	1	0	0	0	5	26
Grand Rapids	12	8	0	0	0	0	0	0	0	1	43
Wisconsin:											
Kenosha	3	1	0	0	0	0	0	0	0	6	9
Milwaukee	29	20	0	0	0	3	1	0	0	20	116
Racine	6	8	0	0	0	1	0	0	0	7	20
Superior	2	3	0	0	0	0	0	0	0	0	9
WEST NORTH CENTRAL											
Minnesota:											
Duluth	9	8	0	0	0	2	0	0	0	2	24
Minneapolis	54	14	3	0	0	3	1	1	0	1	113
St. Paul	27	7	4	0	0	7	0	0	0	5	81
Iowa:											
Davenport	2	1	0	5			0	0		0	
Des Moines	8	4	1	7			0	0		0	28
Sioux City	2	1	0	2			0	0		1	
Waterloo	3	1	0	22			0	0		5	

City reports for week ended December 28, 1929—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- cul- osis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
WEST NORTH CENTRAL—CON.											
Missouri:											
Kansas City.....	14	18	3	0	0	9	0	0	0	3	112
St. Joseph.....	2	0	0	1	0	0	0	0	0	0	38
St. Louis.....	39	13	1	2	0	6	2	0	0	5	220
North Dakota:											
Fargo.....	2	2	0	1	0	1	0	0	0	0	7
South Dakota:											
Aberdeen.....	0	0	0	0	-----	-----	0	0	-----	3	-----
Sioux Falls.....	2	1	0	7	-----	-----	0	0	-----	0	12
Nebraska:											
Omaha.....	6	2	2	1	0	1	0	0	0	0	-----
Kansas:											
Topeka.....	2	12	0	1	0	1	0	0	0	1	11
Wichita.....	4	15	0	0	0	1	0	0	0	0	43
SOUTH ATLANTIC											
Delaware:											
Wilmington....	4	0	0	0	0	0	0	0	0	6	20
Maryland:											
Baltimore.....	29	25	0	0	0	20	2	4	1	10	207
Cumberland....	0	2	0	0	0	0	0	0	0	0	10
Frederick.....	0	1	0	0	0	0	0	0	0	0	3
District of Col.:											
Washington....	23	25	0	0	0	14	1	1	0	3	140
Virginia:											
Lynchburg.....	0	1	0	0	0	1	0	0	0	5	14
Norfolk.....	3	1	0	0	0	0	0	0	0	0	-----
Richmond.....	6	4	0	0	0	2	0	0	0	0	59
Roanoke.....	2	3	0	0	0	0	0	0	0	0	26
West Virginia:											
Charleston.....	2	0	0	0	0	1	0	0	0	1	14
Wheeling.....	2	3	0	0	0	1	0	0	0	2	25
North Carolina:											
Raleigh.....	0	1	0	0	0	0	0	0	0	0	17
Wilmington....	0	1	0	0	0	0	0	0	0	0	15
Winston-Salem..	2	2	0	0	0	1	0	0	0	4	23
South Carolina:											
Charleston.....	0	1	0	0	0	2	0	0	0	0	33
Columbia.....	0	1	0	0	0	1	0	0	0	5	23
Georgia:											
Atlanta.....	4	5	0	1	0	2	0	0	0	2	90
Brunswick.....	0	0	0	0	0	1	0	0	0	0	3
Savannah.....	1	2	0	0	0	5	1	0	0	0	51
Florida:											
Miami.....	2	0	0	0	0	0	0	1	0	0	43
Tampa.....	1	0	1	0	0	1	0	0	0	0	24
EAST SOUTH CENTRAL											
Kentucky:											
Covington.....	2	0	0	1	0	1	0	1	0	0	13
Tennessee:											
Memphis.....	4	4	0	0	0	3	0	0	0	0	70
Nashville.....	3	0	0	0	0	2	0	3	0	2	28
Alabama:											
Birmingham....	4	5	1	0	0	4	1	1	0	1	73
Mobile.....	0	0	0	0	0	3	0	0	0	0	32
Montgomery....	0	2	0	0	-----	-----	0	0	-----	0	-----
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith....	0	3	0	0	-----	-----	0	0	-----	0	-----
Little Rock....	2	1	0	0	0	0	0	0	0	0	-----
Louisiana:											
New Orleans....	6	16	0	0	0	19	2	1	1	0	204
Shreveport.....	2	1	0	0	0	2	0	0	0	0	34
Oklahoma:											
Oklahoma City..	8	0	0	0	0	1	0	4	0	0	41
Tulsa.....	2	2	1	8	-----	-----	0	0	-----	1	-----

City reports for week ended December 28, 1929—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
WEST SOUTH CENTRAL.—contd.											
Texas:											
Dallas.....	5	5	0	0	0	1	0	0	0	0	68
Fort Worth.....	2	1	0	2	0	3	0	0	0	0	42
Galveston.....	0	0	0	0	0	0	0	0	0	0	21
Houston.....	3	2	0	6	0	3	0	0	0	0	81
San Antonio.....	2	4	0	1	0	11	0	1	0	0	77
MOUNTAIN											
Montana:											
Billings.....	1	0	0	0	0	0	0	0	0	0	7
Great Falls.....	2	13	0	0	0	0	1	0	0	0	11
Helena.....	0	0	0	0	0	0	0	0	0	0	9
Missoula.....	0	0	0	5	0	0	0	0	0	0	3
Idaho:											
Boise.....	2	0	0	0	0	0	0	0	0	0	8
Colorado:											
Denver.....	12	13	0	0	0	7	0	0	0	13	92
Pueblo.....	3	1	1	0	0	1	0	0	0	0	6
New Mexico:											
Albuquerque.....	0	0	0	0	0	4	0	1	0	0	8
Utah:											
Salt Lake City.....	3	10	2	0	0	0	0	0	0	12	35
Nevada:											
Reno.....	0	0		0	0	0	0	0	0	0	5
PACIFIC											
Washington:											
Seattle.....	8	16	2	2			1	1		1	
Spokane.....	7	3	3	19			0	2		0	
Tacoma.....	3	9	3	3	0	1	0	0	0	1	23
Oregon:											
Portland.....	7	5	8	5	0	0	0	0	1	0	88
Salem.....	0	0	0	0	0	0	0	0	0	0	
California:											
Los Angeles.....	28	51	3	1	0	24	2	1	0	14	286
Sacramento.....	2	7	1	3	0	2	0	0	0	0	28
San Francisco.....	16	16	1	4	0	4	0	0	0	2	140

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, esti- mated expect- ancy	Cases	Deaths
NEW ENGLAND									
Maine:									
Portland.....		1	0	0	0	0	0	0	0
Connecticut:									
Bridgeport.....		0	1	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
New York.....		12	8	2	1	0	1	1	0
New Jersey:									
Newark.....		1	1	0	0	0	0	0	0
Pennsylvania:									
Philadelphia.....		3	1	0	0	1	0	0	0
Pittsburgh.....		1	1	0	0	0	0	0	0

City reports for week ended December 28, 1929—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
EAST NORTH CENTRAL									
Ohio:									
Cleveland.....	2	2	0	0	0	0	0	0	0
Toledo.....	0	0	1	1	0	0	0	0	0
Indiana:									
Fort Wayne.....	1	1	0	0	0	0	0	0	0
Indianapolis.....	24	22	0	0	0	0	0	0	0
Illinois:									
Chicago.....	7	5	0	0	0	0	0	1	1
Michigan:									
Detroit.....	9	4	0	0	0	0	0	0	1
Wisconsin:									
Milwaukee.....	0	1	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
Minneapolis.....	3	0	0	0	0	0	0	0	0
St Paul.....	1	0	0	0	0	0	0	0	0
Missouri:									
Kansas City.....	0	3	0	0	0	0	0	0	0
St Louis.....	2	0	1	0	0	0	0	0	0
Nebraska:									
Omaha.....	3	0	0	0	0	0	0	0	0
SOUTH ATLANTIC									
Virginia:									
Richmond.....	0	2	0	0	0	0	0	0	0
South Carolina:									
Charleston.....	0	0	0	0	1	2	0	0	0
Georgia:									
Atlanta.....	1	1	0	0	0	0	0	0	0
Savannah.....	0	0	0	0	2	1	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis.....	4	1	0	0	0	0	0	0	0
Alabama:									
Mobile.....	0	0	0	0	0	2	0	0	0
WEST SOUTH CENTRAL									
Louisiana:									
New Orleans.....	1	2	0	0	0	1	0	0	0
Shreveport.....	1	1	0	0	0	0	0	0	0
Oklahoma:									
Oklahoma City.....	2	0	0	2	0	0	0	0	0
Tulsa.....	1	0	0	0	0	0	0	0	0
Texas:									
San Antonio.....	0	0	0	0	0	0	0	1	1
MOUNTAIN									
Colorado:									
Denver.....	1	2	0	0	0	0	0	0	0
Utah:									
Salt Lake City.....	1	0	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle.....	2	0	0	0	0	0	0	1	0
Spokane.....	2	0	0	0	0	0	0	0	0
California:									
Los Angeles.....	6	2	0	0	1	1	0	1	0
Sacramento.....	1	1	0	0	0	0	0	0	0
San Francisco.....	1	1	0	1	2	3	0	0	0

The following table gives the rates per 100,000 population for 98 cities for the 5-week period ended December 28, 1929, compared with those for a like period ended December 29, 1928. The population figures used in computing the rates are approximate estimates, authoritative figures for many of the cities not being available. The 98 cities reporting cases have an estimated aggregate population of more than 31,000,000. The 91 cities reporting deaths have nearly 30,000,000 estimated population. The number of cities included in each group and the estimated aggregate populations are shown in a separate table below.

*Summary of weekly reports from cities, November 24 to December 28, 1929—Annual rates per 100,000 population, compared with rates for the corresponding period of 1928*¹

DIPHTHERIA CASE RATES

	Week ended—									
	Nov. 30, 1929	Dec. 1, 1928	Dec. 7, 1929	Dec. 8, 1928	Dec. 14, 1929	Dec. 15, 1928	Dec. 21, 1929	Dec. 22, 1928	Dec. 28, 1929	Dec. 29, 1928
98 cities.....	140	152	147	166	134	159	129	146	² 120	133
New England.....	179	195	113	209	118	216	170	159	² 125	170
Middle Atlantic.....	123	131	110	159	112	139	106	146	113	156
East North Central.....	166	185	191	190	170	208	167	166	166	183
West North Central.....	113	164	121	149	148	149	110	139	67	119
South Atlantic.....	144	128	127	143	107	130	107	122	79	105
East South Central.....	156	175	224	140	136	98	122	133	109	105
West South Central.....	269	223	376	259	304	251	233	191	178	174
Mountain.....	17	53	157	35	61	18	61	71	35	18
Pacific.....	57	72	87	100	60	61	57	95	85	43

MEASLES CASE RATES

	74	116	98	148	113	183	110	170	² 92	161
98 cities.....	74	116	98	148	113	183	110	170	² 92	161
New England.....	70	005	81	736	86	837	93	800	² 98	676
Middle Atlantic.....	33	46	54	46	47	91	59	68	51	77
East North Central.....	101	182	93	187	133	194	94	251	97	206
West North Central.....	100	66	215	104	202	272	210	225	146	201
South Atlantic.....	22	69	4	55	28	88	39	52	80	73
East South Central.....	0	0	14	14	14	0	0	28	0	0
West South Central.....	40	16	47	41	63	12	138	12	91	4
Mountain.....	131	230	165	186	104	257	139	204	78	106
Pacific.....	257	72	389	43	479	64	431	49	337	84

SCARLET FEVER CASE RATES

	213	173	253	201	276	203	250	184	² 217	183
98 cities.....	213	173	253	201	276	203	250	184	² 217	183
New England.....	260	186	278	237	378	251	312	241	² 314	308
Middle Atlantic.....	116	102	148	142	172	143	176	145	164	138
East North Central.....	360	237	409	259	438	290	354	233	311	220
West North Central.....	183	221	231	264	271	252	235	241	179	262
South Atlantic.....	139	145	159	176	193	163	253	166	144	132
East South Central.....	136	161	143	259	88	168	48	154	75	182
West South Central.....	123	186	162	219	142	174	103	101	126	162
Mountain.....	348	115	392	80	322	62	583	27	322	27
Pacific.....	274	261	367	197	352	182	252	197	254	151

¹ The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1929, and 1928, respectively.

² Hartford, Conn., not included.

Summary of weekly reports from cities, November 24 to December 28, 1929—Annual rates per 100,000 population, compared with rates for the corresponding period of 1928—Continued

SMALLPOX CASE RATES

	Week ended—									
	Nov. 30, 1929	Dec. 1, 1928	Dec. 7, 1929	Dec. 8, 1928	Dec. 14, 1929	Dec. 15, 1928	Dec. 21, 1929	Dec. 22, 1928	Dec. 28, 1929	Dec. 29, 1928
98 cities.....	14	6	19	4	23	8	23	8	18	4
New England.....	0	5	0	2	2	0	0	2	0	2
Middle Atlantic.....	0	0	0	0	0	0	0	0	0	0
East North Central.....	13	12	26	10	29	16	31	4	20	3
West North Central.....	48	8	63	2	56	0	60	6	58	10
South Atlantic.....	0	6	0	0	0	2	0	0	2	2
East South Central.....	0	0	0	28	0	7	7	0	7	7
West South Central.....	12	12	20	4	36	24	36	41	28	12
Mountain.....	35	35	78	0	78	44	52	44	44	35
Pacific.....	77	8	62	8	122	20	117	56	80	15

TYPHOID FEVER CASE RATES

	5	6	5	8	6	5	5	4	4	5
98 cities.....	5	6	5	8	6	5	5	4	4	5
New England.....	2	5	2	5	7	7	0	2	0	2
Middle Atlantic.....	2	7	4	7	6	4	4	4	3	4
East North Central.....	5	5	4	7	3	1	3	1	1	5
West North Central.....	6	8	2	4	6	4	8	2	2	6
South Atlantic.....	4	10	6	8	7	6	4	8	9	6
East South Central.....	34	0	48	14	14	21	0	7	34	7
West South Central.....	16	16	0	49	8	16	40	8	8	8
Mountain.....	26	9	26	0	9	9	17	9	0	9
Pacific.....	2	3	10	5	7	8	2	10	10	8

INFLUENZA DEATH RATES

	11	34	17	50	16	80	19	118	19	180
91 cities.....	11	34	17	50	16	80	19	118	19	180
New England.....	5	9	11	9	7	9	9	14	10	14
Middle Atlantic.....	5	10	14	17	9	27	18	66	13	129
East North Central.....	10	14	9	18	15	44	14	124	13	201
West North Central.....	21	18	27	64	12	174	15	220	15	254
South Atlantic.....	17	31	28	54	19	101	13	134	26	281
East South Central.....	15	31	50	84	59	100	52	77	30	268
West South Central.....	57	54	49	54	81	96	69	212	97	379
Mountain.....	17	310	17	514	0	735	26	594	26	266
Pacific.....	13	239	13	293	20	317	30	212	20	182

PNEUMONIA DEATH RATES

	107	139	137	161	151	202	159	250	144	315
91 cities.....	107	139	137	161	151	202	159	250	144	315
New England.....	93	85	75	80	136	108	158	159	96	159
Middle Atlantic.....	101	142	139	149	156	190	165	247	155	294
East North Central.....	83	120	120	135	115	171	117	255	116	382
West North Central.....	126	150	120	190	174	318	180	444	174	364
South Atlantic.....	129	145	131	170	191	251	184	228	152	344
East South Central.....	222	184	237	306	215	199	215	207	193	261
West South Central.....	162	141	248	179	239	182	243	254	243	408
Mountain.....	157	186	165	337	192	629	235	399	209	363
Pacific.....	108	239	144	293	111	222	144	169	106	169

¹ Hartford, Conn., not included.

Number of cities included in summary of weekly reports and aggregate population of cities of each group, approximated as of July 1, 1929 and 1928, respectively

Groups of cities	Number of cities reporting cases	Number of cities reporting deaths	Aggregate population of cities reporting cases		Aggregate population of cities reporting deaths	
			1929	1928	1929	1928
Total.....	98	91	31,568,400	31,052,700	29,995,100	29,498,600
New England.....	12	12	2,305,100	2,273,900	2,305,100	2,273,900
Middle Atlantic.....	10	10	10,809,700	10,702,200	10,809,700	10,702,200
East North Central.....	16	16	8,181,900	8,001,300	8,181,900	8,001,300
West North Central.....	12	9	2,712,100	2,673,300	1,736,900	1,708,100
South Atlantic.....	19	19	2,783,200	2,732,900	2,783,200	2,732,900
East South Central.....	6	5	767,900	745,500	704,200	682,400
West South Central.....	8	7	1,319,100	1,289,900	1,285,000	1,256,400
Mountain.....	9	9	598,800	590,200	598,800	590,200
Pacific.....	6	4	2,090,600	2,043,500	1,890,300	1,651,200

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Week ended December 21, 1929.—The Department of Pensions and National Health reports cases of certain communicable diseases in Canada for the week ended December 21, 1929, as follows:

Provinces	Cerebro-spinal fever	Influenza	Smallpox	Typhoid fever
Prince Edward Island ¹				
Nova Scotia ¹				
New Brunswick.....				2
Quebec.....				8
Ontario.....			4	2
Manitoba.....	1		2	1
Saskatchewan.....		2	18	
Alberta.....			5	1
British Columbia.....			6	1
Total.....	1	2	35	15

¹ No case of any disease included in the table was reported for the week.

Ontario Province—Communicable diseases (comparative)—Four weeks ended December 28, 1929.—The following table shows the number of cases of certain communicable diseases with deaths reported in the Province of Ontario, Canada, during the four weeks ended December 28, 1929, as compared with the corresponding period of 1928:

Disease	1928		1929	
	Cases	Deaths	Cases	Deaths
Cerebrospinal meningitis.....	4	4	4	2
Chancroid.....	13			
Chicken pox.....	1,492	1	1,550	
Conjunctivitis.....	1			
Diphtheria.....	409	19	267	13
Dysentery.....	1			
Erysipelas.....	2			
German measles.....	27		73	
Gonorrhea.....	287		141	
Influenza.....	4,528	94	6	9
Lethargic encephalitis.....	1	2		
Measles.....	2,565	4	384	
Mumps.....	507		113	
Paratyphoid fever.....	8		1	
Pneumonia.....		257		148
Polio-myelitis.....	4		6	1
Scarlet fever.....	544	7	586	7
Septic sore throat.....	10	1	2	
Smallpox.....	16		55	
Syphilis.....	149		159	
Tetanus.....			2	2
Trachoma.....	1			
Tuberculosis.....	165	44	71	30
Typhoid fever.....	91	4	22	
Undulant fever.....	1			
Whooping cough.....	460		283	2

Quebec Province—Communicable diseases—Week ended December 28, 1929.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended December 28, 1929, as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis.....	2	Ophthalmia neonatorum.....	2
Chicken pox.....	87	Scarlet fever.....	113
Diphtheria.....	57	Smallpox.....	1
German measles.....	4	Tuberculosis.....	82
Influenza.....	2	Typhoid fever.....	4
Measles.....	154	Whooping cough.....	54
Mumps.....	42		

CHINA

Meningitis.—The following table shows the numbers of cases of meningitis, with deaths, which have been reported in Canton, China, for the weeks indicated below:

Week ended 1—	Cases	Deaths	Week ended 1—	Cases	Deaths
Nov. 23, 1929.....	7	6	Dec 14, 1929.....	4	3
Nov. 30, 1929.....	7	7	Dec 28, 1929.....	7	6

¹ No reports were received for the weeks ended Dec 7 and Dec. 21, 1929.

CUBA

Habana—Communicable diseases—December, 1929.—During the month of December, 1929, certain communicable diseases were reported in the city of Habana, Cuba, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Chicken pox.....	3	—	Scarlet fever.....	8	—
Diphtheria.....	6	2	Tuberculosis.....	82	13
Malaria.....	24	—	Typhoid fever.....	31	7
Measles.....	16	—			

CZECHOSLOVAKIA

Communicable diseases—October, 1929.—During the month of October, 1929, certain communicable diseases were reported in Czechoslovakia, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax.....	7	2	Puerperal fever.....	49	18
Cerebrospinal meningitis.....	8	3	Rabies.....	2	2
Diphtheria.....	2,291	152	Scarlet fever.....	3,220	52
Dysentery.....	131	2	Trachoma.....	261	—
Malaria.....	12	—	Typhoid fever.....	987	79
Paratyphoid fever.....	28	1			

MEXICO

Vera Cruz—Communicable diseases—Six weeks ended December 14, 1929.—During the six weeks ended December 14, 1929, deaths from certain communicable diseases were reported in Vera Cruz, Mexico, as follows:

Disease	Week ended—					
	Nov. 9	Nov. 16	Nov. 23	Nov. 30	Dec. 7	Dec. 14
Bronchitis.....	1	1				3
Cancer.....		1	3		2	1
Cerebrospinal meningitis.....		1				1
Dysentery.....						1
Gastro-intestinal disorders.....	5	10	5	6	3	6
Hookworm disease.....			1			
Malaria.....	1					
Pneumonia.....	2	1		1	1	1
Syphilis.....		1	1			2
Tuberculosis.....	5	5	7	6	7	7
Tetanus.....		1	1	1	1	
Typhoid fever.....	1			1		2

NETHERLANDS

Smallpox (alastrim)—Week ended December 14, 1929.—During the week ended December 14, 1929, 1 case of smallpox (alastrim) was reported in The Netherlands. It occurred at The Hague.

British East Africa (see also table below): Uganda.....	C	1,437	1,437	840	598	406	110	98	71	63	72	
Canary Islands: Tenerife.....	D	1,072	1,199	730	556	343	101	84	66	59	66	
Ceylon:	D		1									
Colombo.....	C	2	P		1	3					2	
Plague-infected rats.....	D	3			1	1					1	
Galle.....	C		6	1	7						1	
Kandy.....	D		3		8	1					1	
Matara.....	D			1	6							
Matara.....	D			1	1							
Matara.....	D		12		1							
China:	D		11									
Anoy.....	C											
Foochow.....	C		P	P	P	P						
Hong Kong.....	D			1	1							
Plague-infected rats.....	C			3	2							
Manchuria—Tungling District.....	C		P	16								
Dutch East Indies: Java—	C	47	69	122	180	131	61	66	62	77		
Batavia and West Java.....	D	47	68	121	178	128	60	65	61	76		
Plague-infected rats.....	C										3	2
Celebes—Makassar.....	D		3	3	7	66	35				1	
East Java and Madura.....	C		3	3	7	66	36					
Surabaya.....	D		3	3	7	4						
Ecuador (see table below).....	D		3	11	3	7						
Egypt:	C											
Alexandria.....	D	1	7	5	11	12	4	4	2	1	1	2
Assiout.....	D	1	3	1	6	2	3		1	1	1	2
Assiout.....	D					1						1
Assuan.....	D											
Beheira.....	D		4		1							
Beheira.....	D		2									
Beni Suef.....	D		2									
Beni Suef.....	D	6	4	1	1				1	1		
Dakahlieh.....	D	2										
Dakahlieh.....	D	1	1		2							
Gharbieh.....	D		9	1	2							
Gharbieh.....	D		1									
Girga.....	D		3	1	1				1	1		
Kena.....	D		2									
Manufieh Province.....	D		2									
Miniah.....	C		2									
Miniah.....	C		7	1								

: Reports incomplete.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE—Continued

[C indicates cases; D, deaths; P, present]

Place	June, 1929	July, 1929	August, 1929	September, 1929	October, 1929	No. ven-ber, 1929	Place	June, 1929	July, 1929	August, 1929	September, 1929	October, 1929	No. ven-ber, 1929
British East Africa (see also table above):													
Kenya.....	69	67	19	28	64	---	Madagascar—Continued						
Uganda.....	1,215	1,203	846	---	---	---	Moromanga Province.....						
	932	973	749	7	12	14							
Ecuador: Guayaquil.....	D	1	1	3	4	3	Tamatave Province.....						
				4	8	9							
Plague-infected rats.....				5	5	2	Tananarive Province.....						
Greece (see also table above).....	1	3	2	2	2	1	Peru.....						
				1	2	1							
Indo-China (see also table above).....		37	9	---	---	---	Senegal.....						
Madagascar (see also table above).....		19	48	195	203	---	Baol !.....						
		18	46	182	193	---							
Ambohitra Province.....	D	---	9	9	2	---	Dakar !.....						
Antistrabe Province.....	D	2	1	13	17	---	Longa !.....						
		2	1	13	17	---	Rufisque !.....						
Itasy Province.....	D	---	---	5	5	---							
		---	---	5	5	---	Thies !.....						
Majunga Province.....	D	2	2	---	---	---							
		---	---	---	---	---	Tiavaouane !.....						
Miarinarivo.....	D	---	---	11	12	---							
		---	---	11	11	---							

! Incomplete reports.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place	June 2-29, 1929	June 30-July 27, 1929	July 28-Aug. 24, 1929	Aug. 25-Sept. 21, 1929	Sept. 22-Oct. 19, 1929	Week ended—									
						November, 1929									
						Oct. 28, 1929	2	9	16	23	30	7	14	21	28
China:															
Canton.....	C	16	12	2							1		3	1	
Chungking.....	D	1	2												
Foochow.....	C		P	P	P	P	P	P	P	P	P				
Hong Kong.....	C	10	1	6	2	3	4	5	6	10	7	9	36	19	
Manchuria.....	D	6	5	4	2	3	2	7	4	8	6	8	33	12	
Harbin.....	C				1	1	1								
Kwantung-Dairen.....	C	11	14	1	2										
Nanking.....	D	3	P	P				P							
Shanghai.....	C														
Foreigners only.....	C	7	3			2		3	1	2	2	1			
Including natives.....	D	5	3					1		2				2	
Swatow.....	C	24	15	2											
Tientsin.....	D				2	3			1	3	1				
Tsingtau.....	C	P													
Chosen (see table below).															
Colombia:															
Barranquilla.....	C		2		4		14	14	14	14	16	12			
Buenaventura.....	C				15		8								
Dutch East Indies:															
Balikpapan.....	C	1	2	1	1			1	3			1	1		
Belawan Deli.....	C														
Borneo-Samarinda.....	D	3	13	7		11	3	5							
Celebes.....	D	1				3									
Celebes-Makassar.....	D	20	21	4	12	166									
Java.....	D	15	11	3	5	1									
Batavia and West Java.....	C	6	8	10	35	31	4	6			3	1	2	1	
East Java and Madura.....	C	1	2	5	7	6	1	5	1			1	2		
Sumatra-Medan.....	D										4	9			
	D	1	3	3	3			9	1						
	D							1	3						

TYPHUS FEVER

Place	Week ended—																			
	June 2-29, 1929	June 30-July 27, 1929	July 28-Aug. 24, 1929	Aug. 25-Sept. 21, 1929	October, 1929					November, 1929					December, 1929					
					Sept. 28, 1929	5	12	19	26	2	9	16	23	30	7	14				
Algeria:																				
Algiers.....	1	9	4	4	3			1	6				1			1				
Constantine Department.....	11		2																	
Oran.....	5	9	19	3																
Bolivia: Paez Province—Calacoto Canton.....	D		5																	
Brazil: Sao Paulo. ¹	4	12		14																
Bulgaria.....	1	2																		
Sofia.....	D	1																		
Chile: Valparaiso.....	D	1	1																	
China: Tientsin.....	D		1																	
Chosen (see table below).....	D																			
Czechoslovakia (see table below).....	D																			
Egypt:																				
Alexandria.....	D			1	1	1														
Behelra Province.....	D																			
Cairo.....	13	8	31	6	9	3		4	2											
Port Said.....	6	4	4	3	2			2	1											
Suez.....	2	2	4	3	1															
Greece (see table below):	D																			
Ireland (Irish Free State): Donegal County—Stranorlar.....	1																			
Latvia (see table below).....	D																			
Lithuania (see table below).....	D																			
Mexico:																				
Aguscalientes.....	D	1	1	1	3	4		1	1											
Mexico City, including municipalities in Federal District.....	14	11	11	1	1	6														
Morocco.....	12	1	27	6																
Palestine.....	2	11	1	1	1	1		1	1											

¹ Press reports show that 10 deaths from typhus fever have occurred in Sao Paulo, Brazil, from Nov. 3 to 30, 1929.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER—Continued

[C indicates cases; D, death; P, present]

Place	Week ended—													
	June 2-20, 1929	June 30-July 29, 1929	Aug. 28-Sept. 21, 1929	October, 1929					November, 1929					December, 1929
				Sept. 28, 1929	5	12	19	26	2	9	16	23	30	
Persia.....	C	5	23											
Peru: Arequipa (see table below).	D	4	8											
Poland.....	C	177	90	26	5	10	3	26	8	15	13	17	16	19
Portugal:.....	D	7	4	7	4	1	1						3	3
Lisbon.....	C	1												
Oporto.....	C	1			1									
Rumania.....	C	91	33	9	39	6	4	15	1	2	2	2	1	1
Tunisia.....	D	13	2	1	4	2	2	1	5	1	11	8	11	
Turkey (see table below).	C	23	3	4				1				1		1
Union of South Africa:														
Cape Province.....	C	P	P	1	P	P	P	P	P	P	P	P	P	P
Natal.....	C	P	P	P	P	P	P	P	P	P	P	P	P	P
Orange Free State.....	C	P	P	P	P	P	P	P	P	P	P	P	P	P
Transvaal.....	C	P	P	P	P	P	P	P	P	P	P	P	P	P
Yugoslavia (see table below).	C													

Place	June, 1929	July, 1929	August, 1929	September, 1929	October, 1929	November, 1929	December, 1929							
							1	2	3	4	5			
Canada: Ontario.....	1													
Chosen: Seoul.....	2													
Czechoslovakia.....	2	2												
Greece: Athens.....	3		6	3	7									
Latvia.....	5		1											

Place	June, 1929	July, 1929	August, 1929	September, 1929	October, 1929	November, 1929	December, 1929							
							1	2	3	4	5			
Lithuania.....		27	10											
Peru: Arequipa.....		4	1											
Turkey.....		10	1											
Yugoslavia.....		3	3											

YELLOW FEVER

Place	June 2-29, 1929	June 30-29, 1929	July 29-24, 1929	Aug. 25-21, 1929	Sept. 22-19, 1929	Week ended—								
						Oct. 26, 1929	November, 1929				December, 1929			
							2	9	16	23	30	7	14	21
Brazil:														
Bahia.....		1	1											
Niteroy.....				1										
Para.....		1												
Rio de Janeiro.....	1	1	0	2	0	0	0	0	0	0	0	0	0	0
Colombia:		5	1											
Simacota.....			4											
Socorro 1.....		12												
Gold Coast.....														1
Liberia: Monrovia.....	4	4		1										
	3	1												

From June 19 to July 8, 1929, 41 cases of yellow fever with 23 deaths were reported in Socorro, Colombia.

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Corrected Fatality Rates in Public Health Practice
Communicable Diseases in the United States—Summary
Monthly Summary of State Mortality Statistics



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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. R. C. WILLIAMS, *Chief of Division*

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CORRECTED FATALITY RATES IN PUBLIC HEALTH PRACTICE

By HOWARD W. GREEN, B. S., *Secretary, Cleveland Health Council*, and GEORGE W. MOOREHOUSE, M. D., *Formerly Chief, Bureau of Communicable Diseases, Cleveland Division of Health*

The fatality rate is the percentage of the cases which result in death. In a hospital both of these factors are definitely known and the fatality rate may easily be calculated for hospital cases. This is also true in the case of the private practitioner. The calculation of the fatality rate in a city or a state, however, involves an indeterminate factor, the actual number of cases, as only the number of reported cases is known. The cases reported are often quite different from the actual cases due to the fact that only a part of the cases are reported. The consideration of the percentage of cases which are reported, i. e., the index of reporting; the calculation of an estimated number of cases and the fatality rates based upon their estimate, or the corrected fatality rates, are here presented.

Comparisons of the number of cases of any of the common reportable communicable diseases over a period of time in one city or for the same period of time in several cities have not been significant because of variations in the reporting of these diseases.

The fatality rate has been used at times as an index of reporting by assuming that the fatality rate of each disease does not vary much from year to year or from place to place for that disease. Whipple¹ pointed out that the reporting of cases is not uniform from year to year. He stated that when epidemics occur, a larger percentage of the existing cases are reported and therefore the fatality rate is considerably lower than in years when no epidemic occurs. As an illustration, Cleveland in 1903 experienced its last severe epidemic of typhoid fever during which time 3,446 cases and 472 deaths were reported, giving a fatality rate of 14 per cent while during the previous year the fatality rate amounted to 49 per cent with 272 cases and 133 deaths, and during the succeeding year 1,468 cases and 203 deaths gave a fatality rate of 14 per cent. These calculations indicate two things very concretely, first, that only a small percentage of the total actual cases were reported in 1902 and second, that Whipple's statement was quite correct for those years when reporting was more hit

¹ Whipple, George Chandler: *Vital Statistics*, second edition.

and miss than is generally true at the present time in most cities, including Cleveland. However, it is still true in the case of an epidemic of a disease less commonly reported, such as influenza, that the fatality rate as ordinarily calculated varies considerably.

INDEX OF REPORTING

An analysis of the deaths from each of the common reportable communicable diseases according to whether each fatal case was or was not reported as a case before death provides data from which an index of reporting may be calculated. The index is shown as the per cent of the deaths that were previously reported as cases.² The percentages for each of the common reportable communicable diseases are given below.

TABLE 1.—*Per cent of deaths previously reported as cases, Cleveland, Ohio, 1923-1928*

Disease	Per cent	Disease	Per cent
Typhoid and paratyphoid.....	85	Erysipelas.....	72
Smallpox.....	91	Acute poliomyelitis.....	94
Measles.....	67	Tetanus.....	1 57
Scarlet fever.....	94	Epidemic meningitis.....	86
Whooping cough.....	78	Pneumonia.....	1 28
Diphtheria.....	93	Diarrhea and enteritis.....	1 5
Influenza.....	22	Puerperal septicemia.....	1 4

¹ One year omitted.

² Two years omitted.

In the case of measles, scarlet fever, whooping cough, and diphtheria a slight increase has taken place since 1923 in the percentage of deaths reported as cases prior to death. The increase in the percentage of the deaths which were previously reported as cases demonstrates improvement in the reporting of cases by physicians and the more adequate checking of the secondary cases by the public health nurses on their visits in the home.

ESTIMATED TOTAL CASES

The estimated total number of cases is based upon this index of reporting and involves the assumption that the proportion of cases reported is the same for fatal and nonfatal cases. The estimated total cases must be considered as the estimated number of cases attended by physicians which would have been reported had all physicians been reporting conscientiously every case which they had diagnosed. In considering these cases account must be taken of the severity of the disease and of the practice of the family relative to the employment of the physician. With respect to diphtheria or scarlet fever, for instance, the cases vary from those of great severity to mild and presumably

² If a report of a case is received previous to the death certificate, the death is recorded as that of a reported case.

unrecognizable cases scarcely regarded by a careful family as an illness. Furthermore, the families vary from those who delay calling the physician until the case is far advanced to those who call the physician for advice on the slightest provocation.

With these variations the cases reported consist of two rather distinct groups, those seen relatively soon after onset and those seen sometime after, perhaps because the disease progressed much more rapidly than expected. The estimated total cases will not include the cases not seen by physicians which may be of slight severity and either recognized by the family with reasonable accuracy or in which the characteristic symptoms are too slight for such recognition. These latter cases probably account for adult immunity without history of the disease.

CORRECTED FATALITY RATES

The calculation of corrected fatality rates is based upon the total number of deaths and the estimated total number of cases. The detailed data and calculations of the fatality rates for the common reportable communicable diseases occurring during a period of six years in Cleveland, Ohio, are shown in Table A in the appendix. The corrected fatality rates are shown in the following table:

TABLE 2.—*Corrected fatality rates in Cleveland, Ohio*

Disease	1923	1924	1925	1926	1927	1928	1923-1928
Typhoid and paratyphoid.....							12
Smallpox.....							6
Measles.....	0.45	0.53	0.15	0.46	0.34	0.31	.42
Scarlet fever.....	1.5	1.3	1.2	1.3	1.1	1.6	1.4
Whooping cough.....	1.6	1.2	1.7	2.2	1.0	1.6	1.6
Diphtheria.....	6.8	6.5	7.2	7.7	6.2	6.4	6.8
Influenza.....	3.1	7.7	4.2	2.3	6.6	2.0	2.4
Erysipelas.....	8.1	7.4	8.4	9.1	9.2	8.9	8.5
Acute poliomyelitis.....							13
Tetanus.....							41
Epidemic meningitis.....							40
Pneumonia.....	18		16	15	17	15	17
Diarrhea and enteritis.....			10	9	12	12	12
Puerperal septicemia.....		84	69	33	20	25	36

The estimated total cases need not be calculated to obtain these corrected fatality rates. They may be calculated directly by determining the percentage of the cases reported that resulted fatally, leaving out of account the deaths not previously reported as cases. The resulting rates will be identical to those in the above tabulation.

The corrected fatality rates are smaller than the fatality rates as ordinarily calculated except in those instances in which all of the fatal cases are reported prior to death, in which instance they are identical. As the index of reporting approaches 100 the difference in the fatality rates calculated by the two methods approaches zero.

The index of reporting of influenza is 22 per cent for the 6-year period, i. e., 22 per cent of the deaths from influenza were previously reported as cases. For this reason the fatality rates as ordinarily calculated are much greater than the corrected fatality rates as illustrated by the first two lines in the tabulation shown below. The last line shows partially corrected fatality rates. These rates are based upon deaths and cases estimated in the following manner: To the cases reported are added the deaths not reported as cases prior to death. Those diseases which are reported at all completely or for which the number of cases reported is large and the deaths small show a very small difference between fatality rates as ordinarily calculated and as calculated on the cases estimated as just described. The use of this method of calculating fatality rates and estimating cases should be discouraged, since clearly the number of cases estimated in this way is too low.

TABLE 3.—*Influenza case fatality rates computed in three ways, Cleveland, Ohio*

	1923	1924	1925	1926	1927	1928	1923-1928
Ordinary.....	17.8	47.9	46.5	15.5	41.6	4.6	11.2
Corrected.....	3.1	7.7	4.2	2.3	6.6	2.0	2.4
Partially corrected.....	15.5	34.2	32.6	13.7	30.8	4.5	10.3

The actual fatality rates will vary from time to time because of variations in the virulence of the organism, in the resistance of the human organism and in the efficacy of the treatment. Nevertheless it may be assumed that actual fatality rates should not vary as much as the ordinary fatality rates based on reported cases. This has been found to be the case as indicated by comparisons of the coefficients of variation for each series.

The data in The Notifiable Diseases published by the United States Public Health Service for 1925, 1926, and 1927 have been analyzed for the cities having 500,000 population or more. This analysis shows a considerable variation in the fatality rates for these 13 cities. In the case of measles the average case fatality rates, for the three years, range from 0.2, 0.3, and 0.5 per cent in Milwaukee, San Francisco, and Washington to 1.4, 1.7, and 1.8 per cent in Boston, New York, and Detroit. And in the case of scarlet fever they vary from 0.7 per cent in Baltimore, New York, and Washington to 1.5, 1.6, and 1.7 per cent in Detroit, Buffalo, and Chicago. In the case of whooping cough the rates vary from 0.9, 2.2, and 2.3 per cent in Milwaukee, Buffalo, and San Francisco to 4.2, 4.2, and 5.6 per cent in St. Louis, Pittsburgh, and New York.

The city with a low case fatality rate for one disease often has a high rate for another disease. It has also been observed that the cities with the high rates for the 3-year average frequently have a low rate for one or more of the years making up the average.

It is probable that the variation from city to city in the fatality rate is not only due to the completeness or lack of completeness of reporting but that other factors are involved. If the completeness of the reporting of cases were the only factor it might be expected that a city with a high fatality rate for one disease (caused by poor reporting of cases) would have a relatively high fatality rate for each of the common reportable diseases, at least it would be expected to hold about the same position in the array from year to year for the same disease. Neither of these conditions is true and therefore before studies can be made of the underlying causes of the variation in fatality rates from year to year and place to place the uncertainty relative to reporting must be eliminated. If several of the larger cities, besides reporting cases registered and deaths, would classify deaths as reported or not reported as cases prior to death, thus allowing for the calculation of the corrected fatality rates and the estimated total cases, it is believed that some progress might be made toward the understanding of some of the underlying principles involved in the variation of fatality rates.

As an illustration of the present impossibility of comparing fatality rates the following fatality rates for measles are given for New York City and for Cleveland:

Year	New York Ordinary	Cleveland		Year	New York Ordinary	Cleveland	
		Ordinary	Corrected			Ordinary	Corrected
1920.....	2.2	.....	.....	1925.....	1.4	.22	.15
1921.....	2.1	.....	.....	1926.....	1.8	.78	.46
1922.....	2.4	.....	.....	1927.....	1.8	.34	.34
1923.....	1.8	0.45	0.45	1928.....	1.0	.44	.31
1924.....	1.5	.88	.53				

It is evident that the Cleveland rates are smaller than the New York rates for each year and that a comparison with the Cleveland corrected rates shows considerable differences. Is it fair to assume that a smaller portion of the cases are reported in New York or that the organism is more virulent, the human resistance lower, or the treatment of the cases less effective?

As a further illustration of the present dilemma the following data on diphtheria for Detroit ¹ is introduced:

Year	Number of deaths	Death rate per 100,000 population	Deaths per 100 cases	Number of cases	Children immunized
1920	371	38.3	8.3	4,478	0
1921	334	35.5	7.1	4,689	
1922	204	21.4	7.3	2,779	
1923	205	19.5	8.5	2,424	
1924	162	14.3	7.6	2,138	
1925	118	9.5	7.3	1,615	¹ 36,601
1926	450	34.8	14.1	3,181	105,904
1927	278	20.8	11.3	2,458	38,789
1928	224	16.3	11.4	1,958	12,167
1929 ²	¹ 357	¹ 25.1	¹ 13.5	¹ 2,938	¹ 8,570

¹ Includes 1921-1925, inclusive.

² Estimated—based on 1,539 cases and 208 deaths during first 7 months with a population of 1,429,000.

The fatality rate of about 8 during six years, 1920 to 1925 increased to about 11 to 14 with the immunization of some 100,000 children. The corrected fatality rates for 1925 and 1926 should shed light upon the question of whether the percentage of cases reported had decreased or the disease had actually become more severe.

SUMMARY

1. A method of calculating (a) an index of completeness of reporting, (b) estimated total cases, and (c) fatality rates based on these estimates has been presented.

2. The fatality rates here presented are based upon the number of deaths among reported cases and the total number of cases reported. These fatality rates present more nearly the actual fatality rates than the fatality rates as ordinarily calculated.

3. When either all cases are reported or this, or some other more satisfactory method of estimating the total cases, is adopted, then and only then can epidemiological studies based on reported cases be made with a view of understanding the effect of the other factors which cause these large variations in the case fatality from place to place and year to year.

4. It seems desirable that some large cities adopt this procedure and report cases and deaths for several notifiable diseases in such a manner as to make possible the calculation of the corrected fatality rates. The data should be tabulated as cases and deaths separated as to whether or not the case was reported prior to death. As an illustration the following example is inserted:

Reported cases	Deaths		
	Reported as cases	Not reported as cases	Total
1,000	10	5	15

¹ From Weekly Health Review, Detroit Department of Health of Sept. 14, 1929.

From these data it may be assumed that 10 deaths occurred in the 1,000 cases reported and that since 5 other deaths occurred then probably 500 additional cases existed in the community. If this is the fact, instead of 1.5 per cent of the cases being fatal the rate should be 1.

APPENDIX

TABLE A.—Deaths and cases of certain reportable diseases and the case-fatality rates, Cleveland, Ohio, 1923-1928

TYPHOID AND PARATYPHOID FEVER

Year	Deaths		Per cent of deaths reported as cases	Reported cases	Estimated total cases	Fatality rate (per cent)	
	Total	Reported as cases				Based upon reported cases (ordinary)	Based upon estimated total cases (corrected)
1	2	3	4	5	6	7	8
1923-1928.....	75	64	85	540	633	14	12

SMALLPOX

1923-1928.....	11	10	91	181	199	6	6
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MEASLES

1923.....	29	120	100	6,411	6,411	0.45	0.45
1924.....	20	12	60	2,283	3,805	.88	.53
1925.....	6	4	67	2,664	3,996	.22	.15
1926.....	107	63	59	13,677	23,200	.78	.46
1927.....	1	1	100	295	295	.34	.34
1928.....	14	10	71	3,207	4,490	.44	.31
1923-1928.....	177	119	67	28,537	42,446	.62	.42

SCARLET FEVER

1923.....	58	155	95	3,653	3,860	1.6	1.5
1924.....	12	11	91	817	899	1.5	1.3
1925.....	15	12	80	1,001	1,251	1.5	1.2
1926.....	33	31	94	2,301	2,449	1.4	1.3
1927.....	17	17	100	1,517	1,517	1.1	1.1
1928.....	16	16	100	995	995	1.6	1.6
1923-1928.....	151	142	94	10,284	10,936	1.5	1.4

WHOOPIING COUGH

1923.....	34	128	75	1,629	2,172	2.1	1.6
1924.....	36	27	75	2,344	3,125	1.5	1.2
1925.....	56	40	71	2,359	3,303	2.4	1.7
1926.....	105	80	76	3,582	4,701	2.9	2.2
1927.....	17	15	88	1,437	1,629	1.2	1.0
1928.....	51	45	88	2,820	3,196	1.8	1.6
1923-1928.....	299	233	78	14,171	18,185	2.1	1.6

¹ Estimated on cases checked with deaths.

TABLE A.—Deaths and cases of certain reportable diseases and the case-fatality rates, Cleveland, Ohio, 1923-1928—Continued

DIPHTHERIA

Year	Deaths		Per cent of deaths reported as cases	Reported cases	Estimated total cases	Fatality rate (per cent)	
	Total	Reported as cases				Based upon reported cases (ordinary)	Based upon estimated total cases (corrected)
1	2	3	4	5	6	7	8
1923	114	¹ 110	96	1,621	1,683	7.0	6.8
1924	79	71	90	1,094	1,217	7.2	6.5
1925	138	125	91	1,733	1,913	8.0	7.2
1926	192	174	91	2,263	2,497	8.5	7.7
1927	188	178	95	2,862	3,023	6.6	6.2
1928	104	102	98	1,588	1,619	6.5	6.4
1923-1928	815	760	93	11,161	11,969	7.3	6.8

INFLUENZA

1923	130	¹ 22	17	729	4,221	17.8	3.1
1924	81	13	16	169	1,053	47.9	7.7
1925	111	10	9	239	2,652	49.5	4.2
1926	232	34	15	1,499	10,228	15.5	2.3
1927	57	9	16	137	808	41.6	6.6
1928	209	90	43	4,551	10,568	4.6	2.0
1923-1928	820	178	22	7,324	33,740	11.2	2.4

ERYSIPELAS

1923	22	¹ 19	87	237	273	9.3	8.1
1924	19	17	89	231	258	8.2	7.4
1925	30	24	80	285	356	10.5	8.4
1926	41	25	61	274	449	15.0	9.1
1927	30	21	70	228	326	13.1	9.2
1928	41	26	63	292	480	14.0	8.9
1923-1928	183	132	72	1,547	2,145	11.8	8.5

ACUTE POLIOMYELITIS

1923-1928	44	37	84	286	340	15.4	12.9
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TETANUS

1924-1928	21	12	57	29	51	72	41
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EPIDEMIC MENINGITIS

1923-1928	92	70	86	198	231	46	40
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PNEUMONIA

1923	1,181	¹ 401	34	2,191	6,459	84	18
1925	1,064	287	27	1,651	6,696	64	16
1926	1,194	306	26	2,039	7,656	59	15
1927	827	218	26	1,263	4,753	66	17
1928	1,014	249	25	1,665	6,780	61	15
1923, 1925-1928	5,280	1,461	28	8,799	31,799	60	17

¹ Estimated on cases checked with deaths.

TABLE A.—Deaths and cases of certain reportable diseases and the case-fatality rates, Cleveland, Ohio, 1923-1928—Continued

DIARRHEA AND ENTERITIS UNDER 2 YEARS

Year	Deaths		Per cent of deaths reported as cases	Reported cases	Estimated total cases	Fatality rate (per cent)	
	Total	Reported as cases				Based upon reported cases (ordinary)	Based upon estimated total cases (corrected)
1	2	3	4	5	6	7	8
1925.....	238	8	3	69	2,503	345	10
1926.....	176	3	2	33	1,936	533	9
1927.....	115	10	0	83	955	138	12
1928.....	108	10	0	84	907	128	12
1925-1928.....	637	31	5	269	5,524	237	12

PURPERAL SEPTICEMIA

1924.....	52	5	10	6	62	867	84
1925.....	50	0	0	3	80	1,667	63
1926.....	52	1	2	3	156	1,733	33
1927.....	38	1	3	5	190	760	20
1928.....	47	2	4	8	188	762	25
1924-1928.....	239	9	4	25	604	956	36

¹ Based on ratio for groups.

SUMMARY OF CURRENT PREVALENCE OF COMMUNICABLE DISEASES IN THE UNITED STATES ¹

December 1-28, 1929

The prevalence of certain important communicable diseases as indicated by weekly telegraphic reports from State health departments ² to the Public Health Service is summarized below. This summary is prepared from the data published weekly in the Public Health Reports under the section entitled "Prevalence of Disease."

Smallpox.—The smallpox incidence during the period December 1-28, 1929, was considerably in excess of the expectancy for the period. The reported number of cases was 3,907, as compared with 2,149 and 2,784 for the corresponding period of 1928 and 1927, respectively.

Considerable numbers of cases were reported from the States adjoining the Great Lakes: Indiana (643), Ohio (565), Illinois (465), and Michigan (269). The incidence was also fairly heavy in Iowa (382), Oklahoma (255), and Washington (311).

Smallpox normally comes to a peak toward the end of March.

¹ From the Office of Statistical Investigations, U. S. Public Health Service.

² The numbers of States reporting for the various diseases are as follows: Typhoid fever, 41; poliomyelitis, 43; meningococcus meningitis, 42; smallpox, 42; measles, 38; diphtheria, 42; scarlet fever, 41; influenza, 31.

Meningococcus meningitis.—The incidence of meningococcus meningitis continued higher than during the preceding three years. During the month of December 666 cases were reported, as compared with 562 and 221 for the corresponding period of 1928 and 1927, respectively. As the disease normally comes to a peak about March, it is not unlikely that the cases will increase further during the coming months.

Poliomyelitis.—The customary seasonal decline in poliomyelitis was experienced during the period under consideration. The incidence was slightly below the median of recent years.

Typhoid fever.—The incidence of typhoid fever was at about the same low level as last year.

Measles.—The measles incidence was the lowest for the last four years. The reported cases numbered 12,046, a decline of about one-third from the average of recent years.

Influenza.—The incidence of influenza was about equal to the non-epidemic average of recent years; 3,241 cases were reported, as compared with over 321,000 cases during the corresponding period of last year, when the epidemic was approaching its peak.

Diphtheria.—The incidence of diphtheria was also the lowest for the last four years. The reported number of cases was 7,257, as compared with 7,538 last year. The disease has already begun its customary seasonal decline.

Mortality from all causes.—Mortality from all causes in large cities during the current four weeks under report averaged 13.4 per thousand population, according to the Weekly Health Index of the United States Census Bureau. Last year during the corresponding period the rate was 15.6, and the influenza epidemic was at that time spreading rapidly.

RECENT STATE MORTALITY STATISTICS *

For the information of public health officials and others interested, the rates in the following tables have been computed from monthly mortality data furnished by the State health departments for the latest month for which records are available. For purposes of comparison, the mortality records for a few preceding years are given, the rates being those for the month corresponding to the latest month for which the 1929 rate is available.

* From the Office of Statistical Investigations, United States Public Health Service.

Monthly State mortality statistics

[All rates are on an annual basis, and, with the exception of mortality from all causes, infant mortality, and congenital malformations and diseases of early infancy, are per 100,000 population]

	1929										Corresponding month for—			
	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.		1928	1927	1926	1925
ALL CAUSES: ANNUAL RATE PER 1,000 POPULATION														
Alabama.....	12.6	11.4	11.2	11.9	11.8	11.1	11.0	10.8	11.0		10.8	10.0	10.6	9.8
White.....	11.2	10.0	9.0	9.2	9.2	8.7	8.5	8.4	8.8		8.7	8.3	8.7	-----
Colored.....	17.2	15.7	15.3	16.9	16.8	15.7	15.7	15.5	15.1		14.8	13.1	14.1	-----
California.....	15.7	15.4	15.2	13.8	14.2	13.1	12.8	12.4			12.5			-----
Connecticut.....	14.8	12.2	10.4	11.1	9.0	9.3	8.9	9.5	10.2		10.1	9.4	10.2	11.0
Georgia.....	11.2	9.2	9.6	9.1	11.3	10.3	10.0				10.5			-----
Hawaii Territory.....	15.2	14.6	14.6	14.5	12.7	12.1	9.7	10.8	10.3		12.1	11.6		-----
Indiana.....	14.0	13.4	12.4	12.2	11.0	10.5	10.6	10.9	14.3		12.2	11.3	11.4	11.7
Iowa.....	12.2	11.0	10.7	10.4			9.7	8.6	9.7		9.5	9.7		-----
Kansas.....	12.7	12.1	11.0	9.8	9.6	9.2	9.7	8.7			10.0			-----
Louisiana.....	13.4	12.1	11.5	11.2	11.6	11.1	10.8	11.1			11.5			-----
White.....	10.9	9.7	8.8	8.2	8.2	8.3	8.4	9.0			8.9			-----
Colored.....	18.0	16.3	16.5	16.7	16.9	16.0	15.1	15.1			16.4			-----
Maryland.....						11.7	11.9	11.1	12.2					-----
White.....						10.4	10.8	9.9	11.0					-----
Colored.....						18.4	17.6	16.8	18.2					-----
Michigan.....	12.9	13.2	12.7	13.2	11.7	10.8	10.4	11.2	10.9		10.9			-----
Minnesota.....	9.1	9.7	9.3	9.2	8.6	8.3	8.0	7.9	8.1		8.6			-----
Mississippi.....	14.0	13.0	11.8	11.1	12.6	11.7	10.7	10.0			10.7			-----
White.....	11.9	10.5	8.8	8.4	9.0	8.6	8.4	8.0			8.7			-----
Colored.....	15.9	15.3	14.6	13.7	15.9	14.5	12.7	11.7			12.5			-----
Montana.....								9.0						-----
Nebraska.....	11.9	11.0	9.7	9.6	8.4	8.2	7.7				8.2			-----
New Jersey.....	14.0	13.2	12.1	11.3	10.5	10.4	9.0				10.6	10.5	10.2	11.3
New York ¹	15.6	14.1	13.5	13.0	16.0	11.1	11.3	11.4	12.2		12.1	11.7	12.5	13.8
North Carolina.....	15.7	12.6	11.7	11.9										-----
Pennsylvania.....	14.0	12.9	11.7	11.2	9.8	9.6	9.2	10.0	10.6		10.9	10.6	11.3	11.9
South Dakota.....	9.6	8.9	8.0	9.0	7.1	6.8	8.3	7.3			7.1			-----
Tennessee.....	14.4	13.8	11.3	10.7	10.9	11.9	10.9	10.8	11.0		10.9	10.3		-----
White.....	12.7	11.9	9.6	9.1	9.3	10.1	9.4	9.2	9.4					-----
Colored.....	22.6	22.8	19.8	18.2	18.9	20.9	18.2	18.4	18.4					-----
Virginia.....	13.5	12.0	10.3	9.8	9.7	10.2	8.9	9.0	9.6		6.9			-----
White.....	11.3	10.0	8.8	7.8	8.0	8.8	7.4	7.4	8.3		5.1			-----
Colored.....	19.1	17.1	14.4	15.1	14.4	14.0	13.0	13.2	12.9		11.6			-----
Wisconsin.....	11.8	11.2	11.1	10.6	10.0		8.9	9.2	9.4					-----

INFANT MORTALITY, PER 1,000 LIVE BIRTHS

Alabama.....	92	86	69	78	73	70	60	61	67		69	59	69	-----
White.....	79	79	62	66	69	67	52	54	59		62	45	57	-----
Colored.....	117	97	80	99	81	75	75	75	83		82	88	92	-----
California.....	73	74	69	65	63	62	56	56			55			-----
Connecticut.....	85	69	61	79	50	44	53	74	72		59	49	66	76
Georgia.....									73					-----
Hawaii Territory.....	120	129	117	109	108	89	158	81	83		87			-----
Indiana.....	83	70	60	63	48	52	64	74	62		60	67	73	75
Iowa.....	75	37	61	48		44	43	40	45		42			-----
Kansas.....	73	77	69	53	49	47	49	47			58			-----
Louisiana.....	75	76	86	91	95	69	64	62			69			-----
Maryland.....						70	82	78	80					-----
White.....						60	75	68	66					-----
Colored.....						105	113	111	134					-----
Michigan.....	71	71	67	69	57	53	51	63	65		66			-----
Minnesota.....	66	48	51	49	36	39	40	42	40		50			-----
Montana.....								55						-----
Nebraska.....	81	71	50	48	48	36	37				45			-----
New Jersey.....	70	71	70	59	43	46	56	57	52					-----
New York ¹	81	77	70	64	52	45	47	58	64		62	58	69	71
Pennsylvania.....	95	81	69	65	51	49	56	74	68		66	71	85	87
South Dakota.....	99	66	63	63	41	50	39	43			50			-----
Tennessee.....	98	89	61	88	63	83	71	63	70					-----
Virginia.....	91	78	61		67	75	61	65	62					-----
Wisconsin.....	68	69	89	60	51	50	43	56	54		55			-----

¹ Exclusive of New York City.

Monthly State mortality statistics—Continued

	1929										Corresponding month for—			
	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.		1928	1927	1926	1925
CONGENITAL MALFORMATIONS AND DISEASES OF EARLY INFANCY (159-163), PER 1,000 LIVE BIRTHS														
Alabama.....	27	31	27	34	29	27	30	31	21		29	25	28	-----
White.....	28	32	29	34	34	30	30	29	33		29	22	27	-----
Colored.....	26	28	24	34	20	21	31	35	29		28	31	31	-----
California.....	33	31	33	32	30	27	26	30	28		26			-----
Iowa.....	34	36	35	31	-----	30	30	27	-----		26			-----
Kansas.....	32	26	39	33	36	31	30	30	-----		33			-----
Louisiana.....	21	29	31	32	34	28	30	28	-----		30			-----
Maryland.....	-----	-----	-----	-----	-----	36	34	35	36		-----			-----
White.....	-----	-----	-----	-----	-----	36	37	31	36		-----			-----
Colored.....	-----	-----	-----	-----	-----	36	27	49	46		-----			-----
Michigan.....	37	34	35	38	33	36	33	33	36		24			-----
Minnesota.....	35	30	33	32	26	28	29	30	29		33			-----
Nebraska.....	33	30	31	29	33	22	26	-----	-----		27			-----
New York ¹	43	41	38	41	35	45	35	33	38		38	34	39	38
Pennsylvania.....	38	33	34	35	32	30	29	32	33		33	34		-----
South Dakota.....	43	29	32	29	21	35	16	26	-----		34			-----
Tennessee.....	28	27	20	26	28	29	25	25	26		-----			-----

TYPHOID FEVER (1)

Alabama.....	1.4	2.2	5.7	5.5	11.4	12.4	17.4	11.3	6.9	13.8	15.5	25.5	16.2
California.....	2.6	2.1	1.6	1.6	1.9	3.1	2.6	8.5	-----	4.8	-----	-----	-----
Connecticut.....	-----	-----	-----	1.4	1.5	1.4	1.4	0.7	1.4	-----	3.7	.8	3.1
Georgia.....	2.0	2.6	5.3	7.4	12.2	20.2	19.9	-----	14.3	-----	-----	-----	-----
Hawaii Territory.....	3.7	13.5	3.5	3.4	3.5	6.6	-----	6.8	3.3	3.4	7.2	-----	-----
Illinois.....	.9	.5	.9	1.5	1.6	2.2	1.9	2.5	2.2	3.8	8.7	7.0	6.8
Indiana.....	.4	.4	3.4	1.5	2.3	7.0	5.6	5.0	7.3	9.3	12.0	16.6	-----
Iowa.....	1.1	.5	2.6	1.0	-----	9.7	3.4	2.5	2.4	1.0	-----	-----	-----
Kansas.....	1.4	1.9	1.3	1.3	5.3	3.2	7.1	2.0	-----	6.6	-----	-----	-----
Kentucky.....	5.1	3.7	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Louisiana.....	4.0	3.6	11.2	14.5	10.0	17.5	16.9	18.1	-----	25.0	-----	-----	-----
Maryland.....	-----	-----	-----	-----	-----	5.1	8.0	7.5	5.8	-----	-----	-----	-----
Michigan.....	.9	.3	1.9	2.1	1.9	1.5	2.8	3.5	2.8	2.8	-----	-----	-----
Minnesota.....	.4	-----	.5	.4	1.3	2.6	1.3	1.8	.4	.4	-----	-----	-----
Mississippi.....	2.9	6.6	4.1	7.2	15.6	19.7	19.1	15.6	-----	15.6	-----	-----	-----
Montana.....	-----	-----	-----	-----	-----	-----	-----	17.7	-----	-----	-----	-----	-----
Nebraska.....	.9	.8	0	2.5	.9	1.7	2.5	-----	-----	1.7	-----	-----	-----
New Jersey.....	1.0	.3	.3	1.9	.3	1.9	1.8	2.2	2.8	2.5	-----	-----	-----
New York ¹.....	.9	.4	.6	2.1	2.3	2.1	3.2	3.2	2.5	2.5	4.9	2.8	6.8
North Carolina.....	1.8	2.4	2.1	3.2	-----	-----	-----	3.3	2.3	3.9	4.2	7.1	11.2
Pennsylvania.....	2.0	.8	.4	1.8	2.3	2.5	2.5	3.3	-----	28.1	46.2	-----	-----
South Carolina.....	9.1	3.2	3.9	10.1	22.8	25.3	27.8	20.2	-----	8.6	-----	-----	-----
South Dakota.....	3.7	-----	-----	3.5	1.7	3.3	12.1	-----	-----	-----	-----	-----	-----
Tennessee.....	2.1	2.8	2.9	5.2	7.3	19.3	31.1	25.3	-----	16.5	18.4	-----	-----
Virginia.....	.5	.9	.9	5.9	3.8	7.8	5.9	4.3	7.3	-----	-----	-----	-----
Wisconsin.....	1.3	2.0	1.2	.4	.8	.8	2.4	2.1	2.0	.8	-----	-----	-----

MEASLES (7)

Alabama.....	3.4	3.9	5.7	3.2	2.8	1.4	0.5	0.5	0.5	1.8	2.8	1.4	-----
California.....	.6	1.3	-----	.5	-----	.8	.5	-----	-----	-----	-----	-----	-----
Connecticut.....	4.8	7.2	7.4	6.5	3.7	.7	-----	.7	-----	-----	-----	-----	0.8
Georgia.....	2.9	1.5	3.0	2.2	-----	-----	.4	-----	-----	-----	-----	-----	-----
Hawaii Territory.....	3.7	3.4	-----	16.9	17.4	13.2	3.3	-----	-----	3.4	14.5	-----	-----
Illinois.....	3.9	6.9	10.1	9.7	6.9	2.1	.8	.2	.2	.5	.8	.3	1.1
Indiana.....	4.9	10.4	13.4	7.0	5.0	.4	.4	-----	1.0	-----	.4	1.1	-----
Iowa.....	.5	1.9	2.5	1.9	-----	.5	-----	1.0	1.5	-----	-----	-----	-----
Kansas.....	.7	3.8	5.3	7.1	7.3	1.3	1.3	1.3	-----	-----	-----	-----	-----
Kentucky.....	4.1	3.7	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Louisiana.....	5.3	6.0	4.4	4.2	0	2.4	0	4.4	-----	0	-----	-----	-----
Maryland.....	-----	-----	-----	-----	-----	-----	.7	1.5	-----	-----	-----	-----	-----
Michigan.....	1.1	5.1	7.7	9.2	5.0	2.3	.3	-----	.8	1.0	-----	-----	-----
Minnesota.....	2.6	5.2	5.8	4.3	4.9	1.3	-----	.9	.4	.4	-----	-----	-----
Mississippi.....	12.4	18.4	7.5	5.3	2.0	2.0	.7	0	-----	1.4	-----	-----	-----
Nebraska.....	1.9	4.2	0	4.2	7.8	1.7	1.7	-----	-----	-----	-----	-----	-----
New Jersey.....	2.4	1.8	2.2	.6	1.0	.3	.3	0	0	.6	-----	-----	-----
New York ¹	4.4	5.0	3.6	4.1	2.1	1.0	1.4	.6	.6	.6	-----	.4	-----
North Carolina.....	2.7	.4	.8	.8	-----	-----	-----	-----	-----	-----	-----	-----	-----
Pennsylvania.....	7.0	6.5	6.0	5.9	3.8	1.8	1.0	.7	.7	.9	.7	.5	.5
South Carolina.....	-----	-----	-----	.6	-----	-----	-----	-----	-----	-----	-----	-----	-----
South Dakota.....	-----	10.0	6.9	1.7	1.7	3.8	-----	-----	-----	-----	-----	-----	-----
Tennessee.....	-----	.9	1.0	.5	.5	1.5	-----	.5	.9	-----	-----	-----	-----
Virginia.....	1.0	3.2	2.4	3.7	.9	.5	.9	-----	1.4	-----	-----	-----	-----
Wisconsin.....	2.2	2.4	7.0	6.0	4.5	2.0	-----	.8	.8	-----	-----	-----	-----

¹ Exclusive of New York City.

Monthly State mortality statistics—Continued

	1929									Corresponding month for—			
	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	1928	1927	1926	1925
SCARLET FEVER (8)													
Alabama.....	1.4	1.7	—	—	0.0	1.4	0.9	0.5	0.5	1.4	—	—	—
California.....	2.6	2.6	3.7	4.4	2.9	.8	.5	.8	—	.5	—	—	—
Connecticut.....	—	2.9	.7	.7	.7	1.4	1.4	—	.7	—	1.5	1.5	0.8
Georgia.....	2.0	—	1.1	.7	—	—	1.5	—	1.5	—	—	—	—
Illinois.....	5.6	5.6	6.2	5.3	3.7	3.8	.5	.8	3.0	2.1	1.3	1.8	1.6
Indiana.....	5.7	4.4	3.8	4.4	3.4	1.5	1.9	.8	1.5	2.2	3.0	1.5	—
Iowa.....	4.3	2.9	3.5	1.9	—	1.5	1.5	1.0	1.9	1.5	—	—	—
Kansas.....	5.0	6.4	6.0	2.6	2.7	—	—	—	—	1.3	—	—	—
Kentucky.....	6.1	5.1	—	—	—	—	—	—	—	—	—	—	—
Louisiana.....	0	1.2	.6	1.8	0	0	.6	0	—	0	—	—	—
Maryland.....	—	—	—	—	—	1.5	—	.8	2.2	—	—	—	—
Michigan.....	5.4	5.4	7.7	3.3	2.7	1.5	.5	.8	1.5	1.0	—	—	—
Minnesota.....	2.2	3.9	2.7	2.2	—	1.3	1.7	1.3	1.3	2.6	—	—	—
Montana.....	—	—	—	—	—	—	—	—	4.4	—	—	—	—
Nebraska.....	8.3	5.9	9.5	6.7	1.7	1.7	0	—	—	1.8	—	—	—
New Jersey.....	1.4	1.2	2.2	1.5	1.6	.3	—	1.0	.6	.9	—	—	—
New York ¹	3.7	3.1	2.6	2.3	1.1	.8	1.4	1.1	1.0	.4	1.1	1.7	1.9
North Carolina.....	1.8	1.2	2.9	2.4	—	—	—	—	—	—	—	—	—
Pennsylvania.....	3.3	3.0	3.3	3.1	2.1	1.4	1.0	1.2	1.1	2.8	.7	1.4	1.7
South Carolina.....	—	—	—	1.3	.7	1.3	—	.7	—	—	.7	—	—
South Dakota.....	5.6	6.0	—	6.7	5.2	—	1.7	—	—	—	—	—	—
Tennessee.....	4.7	3.3	2.9	2.8	—	.9	.5	1.5	2.8	2.8	—	—	—
Virginia.....	1.0	1.8	—	.5	.5	—	.5	.5	3.7	—	—	—	—
Wisconsin.....	4.4	3.6	5.4	.4	2.9	2.0	1.2	.8	2.4	1.6	—	—	—

WHOPPING COUGH (9)

Alabama.....	10.1	7.0	10.4	10.1	10.4	17.4	11.9	6.6	4.6	4.1	6.1	8.0	3.6
California.....	4.3	7.2	8.3	9.0	10.2	7.8	6.7	3.5	—	8.8	—	—	—
Connecticut.....	4.0	2.9	.7	2.2	3.0	2.2	2.2	1.5	0.7	5.9	.7	.8	7.7
Georgia.....	3.7	5.5	4.9	4.4	13.7	15.8	13.6	—	9.6	—	—	—	—
Hawaii Territory.....	37.4	40.5	83.7	67.5	38.3	16.4	6.6	13.6	9.9	6.7	—	—	—
Illinois.....	2.3	2.6	3.5	4.3	3.4	3.2	5.9	5.1	2.4	1.4	2.5	2.2	3.5
Indiana.....	6.2	6.3	6.5	7.0	6.5	4.8	6.7	4.2	4.4	1.1	3.4	8.3	—
Iowa.....	3.2	6.3	8.0	4.8	—	4.8	4.8	5.0	—	1.9	—	—	—
Kansas.....	7.8	5.8	4.6	2.6	2.7	4.5	3.8	2.0	—	4.0	—	—	—
Kentucky.....	13.8	8.8	—	—	—	—	—	—	—	—	—	—	—
Louisiana.....	6.7	6.0	7.5	6.0	6.9	11.5	4.8	4.4	—	7.5	—	—	—
Maryland.....	—	—	—	—	—	7.3	11.7	5.3	6.6	—	—	—	—
Michigan.....	7.7	4.6	7.2	8.2	5.6	3.3	7.4	6.6	4.6	3.3	—	—	—
Minnesota.....	6.1	4.3	4.9	5.2	.9	4.8	3.0	4.0	2.6	2.6	—	—	—
Mississippi.....	10.2	11.2	14.3	10.5	17.7	12.5	11.8	8.2	—	2.7	—	—	—
Montana.....	—	—	—	—	—	—	—	—	4.4	—	—	—	—
Nebraska.....	1.9	5.0	1.7	6.7	3.5	5.0	3.3	—	—	3.3	—	—	—
New Jersey.....	6.8	6.2	5.7	4.0	2.2	2.8	4.9	4.1	4.0	4.0	—	—	—
New York ¹	5.0	5.4	4.3	3.3	2.1	1.8	4.1	2.6	3.7	2.3	2.4	3.3	3.9
North Carolina.....	8.4	5.2	7.5	9.6	—	—	—	—	—	—	—	—	—
Pennsylvania.....	8.4	5.2	4.8	4.3	4.3	5.0	6.0	5.0	3.9	4.9	2.1	6.6	5.1
South Carolina.....	9.1	7.6	13.1	17.1	22.8	18.3	15.8	9.1	—	3.3	16.5	—	—
South Dakota.....	3.7	3.3	1.7	11.7	6.9	6.9	1.7	1.7	—	6.9	—	—	—
Tennessee.....	6.8	4.2	6.3	7.5	6.3	13.7	10.0	7.8	5.6	3.3	—	—	—
Virginia.....	9.1	6.9	6.1	8.2	9.9	12.8	18.9	9.4	7.3	—	—	—	—
Wisconsin.....	3.5	3.2	6.6	5.6	4.9	4.4	4.0	2.1	1.6	2.8	—	—	—

¹ Exclusive of New York City.

Monthly State mortality statistics—Continued.

	1929									Corresponding month for—			
	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	1928	1927	1926	1925
DIPHTHERIA (10)													
Alabama.....	3.9	4.3	2.8	2.3	1.4	2.8	7.3	16.6	23.3	17.4	23.9	15.1	12.6
California.....	3.7	1.8	3.7	3.4	4.3	1.8	3.1	2.9	—	3.5	—	—	—
Connecticut.....	4.0	2.9	3.7	4.3	3.7	2.9	1.4	4.4	7.2	5.1	4.5	4.5	8.5
Georgia.....	2.4	1.8	1.9	22.4	20.9	11.4	5.2	—	11.8	—	—	—	—
Hawaii Territory.....	11.2	13.5	20.9	6.7	10.5	6.6	2.3	13.6	6.6	27.0	29.0	—	—
Illinois.....	8.8	10.4	11.6	12.6	11.1	9.1	7.0	4.6	11.5	8.9	8.1	8.4	7.8
Indiana.....	5.7	3.7	5.0	3.3	1.5	2.2	3.0	4.2	9.7	7.8	12.3	10.6	—
Iowa.....	—	—	—	—	—	—	—	—	—	—	—	—	—
Kansas.....	2.8	4.5	4.6	1.3	1.3	—	—	4.0	—	2.0	—	—	—
Kentucky.....	10.2	5.1	—	—	—	—	—	—	—	—	—	—	—
Louisiana.....	8.7	3.0	2.5	5.4	3.1	3.6	6.0	5.0	—	4.4	—	—	—
Maryland.....	—	—	—	—	—	1.5	5.1	1.5	3.6	—	—	—	—
Michigan.....	8.5	12.6	10.3	11.3	13.0	9.8	6.9	8.5	13.3	8.7	—	—	—
Minnesota.....	2.2	3.0	2.2	2.6	—	2.6	1.7	1.8	1.3	1.7	—	—	—
Mississippi.....	5.8	2.0	2.0	—	1.4	1.3	5.3	6.8	—	9.5	—	—	—
Montana.....	—	—	—	—	—	—	—	8.9	—	—	—	—	—
Nebraska.....	5.6	2.5	4.2	—	5.2	—	0	—	—	3.3	—	—	—
New Jersey.....	13.0	10.2	10.5	10.5	9.9	8.9	5.5	6.7	10.8	7.1	—	—	—
New York.....	3.4	3.7	2.4	3.1	4.1	2.1	2.7	1.7	4.1	2.3	3.6	4.4	6.6
North Carolina.....	10.2	4.8	4.1	1.6	—	—	—	—	—	—	—	—	—
Pennsylvania.....	7.1	9.2	6.8	5.7	5.7	4.4	2.9	6.0	7.4	6.0	9.5	8.9	10.6
South Carolina.....	4.9	6.9	2.0	4.4	3.3	1.9	10.1	10.4	—	11.1	11.9	—	—
South Dakota.....	1.9	—	3.5	3.3	—	—	—	1.7	—	—	—	—	—
Tennessee.....	4.7	4.7	2.9	3.3	2.9	1.4	6.1	8.8	20.7	17.4	—	—	—
Virginia.....	4.6	7.8	1.9	1.4	1.4	2.7	3.2	10.4	16.9	10.1	—	—	—
Wisconsin.....	3.1	2.0	—	4.4	2.5	1.6	2.0	2.1	3.6	2.8	—	—	—

INFLUENZA (11)

Alabama.....	236.7	117.9	53.2	43.6	19.5	9.6	9.2	9.9	10.1	25.2	14.5	12.8	8.1
White.....	241.3	110.0	47.1	32.2	18.1	8.4	6.3	10.1	9.8	21.0	16.0	9.6	—
Colored.....	261.0	130.4	64.0	77.8	21.8	11.9	14.5	9.5	10.5	33.0	11.8	18.4	—
California.....	47.2	40.1	23.5	13.4	7.5	5.2	4.1	5.9	—	7.7	—	—	—
Connecticut.....	133.5	40.9	21.5	9.3	3.7	2.9	2.2	5.2	12.2	12.4	4.5	12.8	10.0
Georgia.....	164.0	77.2	74.5	22.4	20.9	11.4	5.2	—	19.5	—	—	—	—
Hawaii Territory.....	20.9	23.6	38.3	27.0	20.9	19.7	13.2	6.8	3.3	37.1	10.9	—	—
Illinois.....	71.6	47.8	20.5	15.0	7.1	3.5	3.3	4.8	8.4	—	—	—	—
Indiana.....	131.3	66.0	36.4	21.1	13.0	11.1	8.5	10.3	24.7	16.3	12.7	19.2	17.1
Iowa.....	101.5	57.7	28.1	28.6	—	9.7	5.3	8.0	9.2	19.9	—	—	—
Kansas.....	120.8	85.3	46.4	29.5	21.2	12.2	11.5	9.9	—	9.9	—	—	—
Kentucky.....	281.9	98.7	—	—	—	—	—	—	—	—	—	—	—
Louisiana.....	179.8	95.4	41.8	19.9	11.8	11.5	11.5	15.6	—	21.8	—	—	—
White.....	140.4	76.5	39.8	14.9	9.6	8.4	9.3	10.6	—	21.2	—	—	—
Colored.....	252.2	130.2	61.9	29.1	15.9	17.1	15.4	24.8	—	23.0	—	—	—
Maryland.....	—	—	—	—	—	2.2	—	5.3	8.7	—	—	—	—
White.....	—	—	—	—	—	—	—	—	—	—	—	—	—
Colored.....	—	—	—	—	—	9	—	4.5	7.8	—	—	—	—
Michigan.....	76.9	39.5	24.1	21.8	10.2	6.7	5.1	6.4	11.8	10.0	—	—	—
Minnesota.....	65.4	38.9	19.2	17.7	6.7	4.3	5.2	6.3	6.9	16.4	—	—	—
Mississippi.....	172.5	118.3	42.8	27.0	17.7	11.2	7.9	6.8	—	11.5	—	—	—
White.....	154.2	102.0	34.2	20.7	11.4	17.6	8.3	5.7	—	10.0	—	—	—
Colored.....	189.6	133.5	50.8	32.7	23.4	15.8	7.5	7.8	—	13.0	—	—	—
Montana.....	—	—	—	—	—	—	—	11.1	—	—	—	—	—
Nebraska.....	108.3	59.4	32.8	26.8	23.3	5.9	5.0	—	—	11.7	—	—	—
New Jersey.....	59.4	25.0	15.0	10.2	2.2	2.2	1.8	1.6	4.9	7.7	5.0	5.4	5.2
New York.....	98.2	36.6	23.1	13.0	3.3	2.9	2.0	3.2	8.1	8.8	10.7	7.4	11.2
North Carolina.....	281.3	116.2	59.2	37.3	—	—	—	—	—	—	—	—	—
Pennsylvania.....	95.6	55.0	26.9	20.6	10.0	6.7	4.9	9.7	16.7	14.4	11.8	11.7	17.4
South Carolina.....	172.7	98.5	51.6	29.7	17.6	13.9	10.7	9.1	—	11.1	4.6	—	—
South Dakota.....	124.1	45.2	41.5	38.5	15.6	10.0	11.7	8.6	—	10.4	—	—	—
Tennessee.....	252.2	153.9	71.0	33.4	18.0	13.2	10.4	5.8	19.8	17.9	11.4	—	—
White.....	238.2	141.4	61.6	27.8	14.7	11.9	9.7	5.9	16.5	—	—	—	—
Colored.....	319.8	214.6	116.6	60.5	34.1	19.2	13.7	5.7	37.7	—	—	—	—
Virginia.....	192.9	88.2	48.7	19.2	9.9	5.0	5.9	9.0	14.2	—	—	—	—
White.....	156.7	63.2	36.6	11.4	5.9	1.9	7.0	3.9	10.1	—	—	—	—
Colored.....	237.5	153.8	80.3	39.7	20.6	13.2	3.3	22.2	24.8	—	—	—	—
Wisconsin.....	75.9	36.3	27.2	20.7	9.9	7.2	6.0	6.6	10.4	10.0	—	—	—

¹ Exclusive of New York City.

Monthly State mortality statistics—Continued

	1929									Corresponding month for—			
	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	1928	1927	1926	1925
POLIOMYELITIS (22)													
Alabama.....	2.4	0.4	0.9	—	2.8	0.5	1.4	0.5	0.5	0.9	1.4	1.4	—
California.....	.9	.8	.8	2.1	.8	.8	1.8	1.9	—	1.6	—	—	—
Connecticut.....	—	—	—	—	1.5	.7	.7	—	—	1.5	.7	.8	0.8
Hawaii Territory.....	—	—	—	3.4	—	—	3.3	3.4	—	3.4	—	—	—
Illinois.....	—	.3	—	.3	.2	.2	—	.3	.3	—	—	—	—
Indiana.....	—	.4	—	—	.4	—	—	.4	—	—	—	—	—
Iowa.....	—	1.5	.5	—	—	.5	1.0	1.5	1.5	—	—	—	—
Kansas.....	—	.6	—	—	1.3	.6	.6	1.3	—	.7	—	—	—
Kentucky.....	1.0	.5	—	—	—	—	—	—	—	—	—	—	—
Louisiana.....	.7	1.2	1.3	.6	—	.6	.6	—	—	1.2	—	—	—
Maryland.....	—	—	—	—	—	—	.7	.8	—	—	—	—	—
Michigan.....	.3	.8	.5	.5	.8	1.0	1.0	2.1	2.1	1.3	—	—	—
Minnesota.....	.9	.4	.9	—	—	—	.4	.9	.4	3.9	—	—	—
Mississippi.....	1.5	.7	1.4	—	2.0	2.0	—	—	—	2.0	—	—	—
Nebraska.....	—	.8	—	—	—	.8	1.7	—	—	1.7	—	—	—
New Jersey.....	.3	.6	—	.3	.6	.6	.3	.3	1.5	1.8	—	—	—
New York ¹.....	.7	.2	.2	.4	.2	1.4	3.3	4.1	3.7	3.6	2.8	3.7	2.2
North Carolina.....	.4	1.6	1.2	.8	—	—	—	—	—	—	—	—	—
Pennsylvania.....	.6	.4	—	.5	.7	.5	.7	.6	1.0	.9	3.1	1.0	1.3
South Carolina.....	.7	.6	—	1.3	—	.6	.6	.7	—	2.0	—	—	—
South Dakota.....	3.7	—	—	5.0	—	—	—	—	—	—	—	—	—
Tennessee.....	.5	.9	.5	1.9	1.5	1.9	1.4	1.0	2.4	1.9	—	—	—
Virginia.....	—	1.4	.9	—	—	.9	4.6	1.4	2.3	—	—	—	—
Wisconsin.....	.4	—	—	.8	1.2	.4	—	1.2	.4	—	—	—	—
LETHARGIC ENCEPHALITIS (23)													
Alabama.....	0.5	2.3	1.9	0.5	0.5	0.9	0.5	0.9	0.9	—	—	—	—
California.....	1.4	1.0	2.4	1.6	1.3	1.3	1.3	1.6	—	1.6	—	—	—
Connecticut.....	3.2	2.2	—	1.4	.7	.7	1.4	2.2	1.4	.7	—	—	—
Hawaii Territory.....	—	—	—	—	—	3.3	3.3	3.4	—	—	—	—	—
Illinois.....	2.1	1.1	1.4	1.1	.7	.3	.2	.2	.2	—	—	—	—
Indiana.....	.8	1.1	1.5	.7	1.1	.7	.4	.8	—	—	—	—	—
Iowa.....	1.0	2.4	1.0	1.5	—	.5	—	1.5	1.9	1.0	—	—	—
Kansas.....	—	.6	.7	2.6	—	1.3	.6	—	—	.7	—	—	—
Kentucky.....	.5	—	—	—	—	—	—	—	—	—	—	—	—
Louisiana.....	0	1.2	0	1.8	0	0	0	0	—	1.2	—	—	—
Maryland.....	—	—	—	—	—	—	—	5.4	2.2	—	—	—	—
Michigan.....	1.1	1.0	1.6	2.3	2.1	.5	.3	1.1	1.0	2.1	—	—	—
Minnesota.....	2.2	2.0	1.8	1.7	4.0	2.6	.9	.9	1.7	2.2	—	—	—
Mississippi.....	.7	.7	1.4	.7	0	0	1.3	—	—	1.4	—	—	—
Montana.....	—	—	—	—	—	—	—	2.2	—	—	—	—	—
Nebraska.....	2.8	1.7	0	0	1.7	0	.8	—	—	1.7	—	—	—
New Jersey.....	1.7	1.5	1.0	1.2	1.9	.6	1.2	.3	2.5	1.8	—	—	—
New York ¹.....	.9	1.2	.7	.8	2.4	.6	1.0	.2	.6	—	—	—	—
North Carolina.....	1.8	.8	.4	.4	—	—	—	.7	.7	—	—	—	—
Pennsylvania.....	2.0	1.0	1.2	1.2	.6	1.0	.7	.7	.7	.5	.6	1.0	1.2
South Carolina.....	1.4	5.1	2.0	4.4	3.3	—	1.3	1.3	—	2.6	2.6	—	—
South Dakota.....	—	—	1.7	—	1.7	—	—	—	—	—	—	—	—
Tennessee.....	1.0	—	1.5	—	.5	1.9	.9	.6	.9	.5	—	—	—
Virginia.....	.5	1.4	2.4	.5	.9	—	1.4	.5	.5	—	—	—	—
Wisconsin.....	2.2	2.0	1.6	2.8	2.5	2.8	.4	1.2	1.2	2.0	—	—	—

¹ Exclusive of New York City.

Monthly State mortality statistics—Continued

	1929									Corresponding month for—			
	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	1928	1927	1926	1925
MENINGOCOCCUS MENINGITIS (24)													
Alabama.....	3.9	1.5	-----	0.5	0.9	0.5	0.5	0.5	0.5	-----	-----	-----	-----
California.....	10.3	14.2	12.6	13.2	9.4	4.7	4.1	5.1	-----	0.8	-----	-----	-----
Connecticut.....	2.4	3.6	.7	1.4	-----	-----	.7	-----	-----	2.2	1.5	1.5	0.8
Hawaii Territory.....	18.7	70.9	38.3	50.6	27.9	19.7	3.3	6.8	16.4	-----	-----	-----	-----
Illinois.....	7.1	6.7	2.8	3.2	2.6	2.1	2.1	.8	1.8	2.2	1.9	.5	.6
Indiana.....	-----	1.1	1.9	3.0	1.9	1.1	.7	1.1	-----	-----	-----	-----	-----
Iowa.....	3.8	2.9	2.0	1.5	-----	1.9	1.0	-----	.5	-----	-----	-----	-----
Kansas.....	5.0	3.8	2.7	3.2	2.0	3.2	1.3	2.0	-----	.7	-----	-----	-----
Louisiana.....	4.7	4.2	5.6	1.8	1.9	.6	1.8	0	-----	0	-----	-----	-----
Maryland.....	-----	-----	-----	-----	-----	-----	.8	1.5	-----	-----	-----	-----	-----
Michigan.....	12.5	29.8	37.9	41.8	27.8	19.2	11.0	7.7	7.7	4.1	-----	-----	-----
Minnesota.....	2.6	.4	2.2	1.7	1.3	3.5	1.7	.4	.4	1.3	-----	-----	-----
Mississippi.....	.7	.7	.7	-----	.7	1.3	-----	-----	-----	-----	-----	-----	-----
Montana.....	-----	-----	-----	-----	-----	-----	4.4	-----	-----	-----	-----	-----	-----
Nebraska.....	7.4	6.7	2.6	1.7	1.7	.8	2.5	-----	-----	0	-----	-----	-----
New Jersey.....	2.4	2.5	2.2	4.6	2.2	2.2	1.2	1.9	2.2	1.5	-----	-----	-----
New York ¹	1.8	1.0	2.1	1.4	.6	1.0	2.1	.2	1.7	-----	-----	-----	-----
North Carolina.....	.4	.4	.4	1.2	-----	-----	-----	-----	-----	-----	-----	-----	-----
Pennsylvania.....	2.8	3.1	2.2	3.4	1.2	1.6	2.4	2.1	1.5	.5	.5	.3	.3
South Carolina.....	2.8	3.2	3.9	2.5	2.0	1.9	.6	3.9	-----	.7	2.0	-----	-----
South Dakota.....	3.7	10.0	1.7	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Tennessee.....	1.0	3.9	3.4	1.9	1.5	2.8	.5	1.5	1.4	2.4	-----	-----	-----
Virginia.....	1.5	1.8	1.4	2.7	.9	1.4	-----	.9	-----	-----	-----	-----	-----
Wisconsin.....	6.6	10.0	2.9	3.6	4.5	1.2	2.4	1.6	1.6	3.6	-----	-----	-----

TUBERCULOSIS, ALL FORMS (31-37)

Alabama.....	83.6	80.5	91.8	88.1	81.3	86.5	78.7	82.8	76.4	74.3	66.1	83.3	82.7
White.....	62.9	51.9	55.0	45.6	39.1	45.6	37.8	44.9	42.8	38.5	37.2	43.6	-----
Colored.....	134.2	146.4	159.4	167.4	159.4	163.5	155.6	154.0	139.8	141.1	118.4	153.8	-----
California.....	147.9	149.4	138.6	189.6	130.3	122.8	122.0	109.5	-----	113.5	-----	-----	-----
Connecticut.....	77.1	68.2	64.5	66.0	61.5	61.7	61.0	52.6	48.8	63.5	54.9	73.3	53.1
Georgia.....	60.6	66.9	74.5	72.4	85.9	68.7	59.2	-----	56.2	-----	-----	-----	-----
Hawaii Territory.....	89.6	91.2	121.9	124.8	129.0	111.8	105.2	105.5	108.5	121.5	137.7	-----	-----
Illinois.....	84.3	95.2	98.4	70.7	73.9	68.3	64.3	54.1	59.1	62.7	70.7	69.7	64.8
Indiana.....	76.8	79.7	81.6	74.9	81.2	58.2	63.4	63.2	77.0	64.1	57.9	70.9	68.5
Iowa.....	38.7	35.4	40.6	37.3	-----	35.9	36.4	33.6	24.7	24.7	-----	-----	-----
Kansas.....	50.4	41.1	36.5	41.1	42.4	34.7	35.3	33.2	-----	31.2	-----	-----	-----
Kentucky.....	121.0	91.3	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Louisiana.....	91.6	92.4	104.2	90.6	99.2	83.3	70.0	81.7	-----	72.4	-----	-----	-----
White.....	61.9	50.4	54.9	47.6	63.0	42.9	36.4	52.0	-----	38.5	-----	-----	-----
Colored.....	146.0	169.6	194.7	169.6	184.1	157.0	131.9	136.3	-----	134.5	-----	-----	-----
Maryland.....	-----	-----	-----	-----	-----	99.8	92.5	70.8	91.8	-----	-----	-----	-----
White.....	-----	-----	-----	-----	-----	67.6	70.2	55.6	68.5	-----	-----	-----	-----
Colored.....	-----	-----	-----	-----	-----	268.8	209.0	188.3	214.2	-----	-----	-----	-----
Michigan.....	72.1	72.3	80.6	85.7	71.3	66.2	60.0	67.3	56.9	58.2	-----	-----	-----
Minnesota.....	48.4	60.1	65.3	55.8	67.2	49.7	51.9	46.5	38.1	34.6	-----	-----	-----
Mississippi.....	72.1	96.0	98.5	91.4	95.8	83.5	67.7	67.3	-----	78.1	-----	-----	-----
White.....	45.8	53.8	41.3	38.6	39.9	30.3	31.1	27.1	-----	37.0	-----	-----	-----
Colored.....	96.2	134.7	150.9	139.8	147.0	132.2	99.3	103.9	-----	115.6	-----	-----	-----
Montana.....	-----	-----	-----	-----	-----	-----	44.3	-----	-----	-----	-----	-----	-----
Nebraska.....	38.9	27.6	42.3	36.0	25.9	29.3	27.6	-----	-----	28.4	-----	-----	-----
New Jersey.....	84.3	84.7	84.7	76.1	70.1	75.5	72.4	65.9	69.6	73.6	70.7	66.2	63.4
New York ¹	82.8	76.3	80.6	82.3	78.4	64.7	70.3	57.7	58.5	71.8	64.9	77.0	68.1
North Carolina.....	91.0	89.4	102.7	91.4	-----	-----	-----	-----	-----	-----	-----	-----	-----
Pennsylvania.....	69.4	66.7	68.8	69.6	63.6	62.3	56.0	52.6	53.8	58.0	57.6	66.7	66.5
South Carolina.....	65.0	77.7	71.2	87.8	94.0	79.0	69.5	64.6	-----	53.5	69.2	-----	-----
South Dakota.....	57.4	43.5	48.4	60.2	48.4	55.2	65.2	39.7	-----	29.4	-----	-----	-----
Tennessee.....	145.9	139.3	146.9	133.2	140.5	112.9	105.9	103.9	104.5	106.8	108.0	-----	-----
White.....	119.4	113.0	107.4	102.8	109.1	79.0	81.2	78.6	84.0	-----	-----	-----	-----
Colored.....	274.1	266.8	338.3	280.6	292.8	277.6	225.4	221.5	203.4	-----	-----	-----	-----
Virginia.....	85.6	84.1	93.6	96.9	78.4	82.3	76.8	74.2	78.6	84.1	-----	-----	-----
White.....	65.8	66.3	53.6	58.8	45.7	49.3	48.7	48.3	52.5	60.7	-----	-----	-----
Colored.....	137.3	157.1	198.3	196.8	164.1	168.7	150.5	141.9	147.2	145.5	-----	-----	-----
Wisconsin.....	47.7	63.8	72.9	47.8	63.4	48.3	48.3	49.0	51.8	42.3	-----	-----	-----

¹ Exclusive of New York City.

Monthly State mortality statistics—Continued

	1929										Corresponding month for—			
	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.		1928	1927	1926	1925
CANCER, ALL FORMS (43-49)														
Alabama.....	45.9	41.3	45.0	48.2	54.7	50.8	44.4	53.4	57.2	52.3	48.3	42.1	29.6	
White.....	49.7	46.3	55.8	52.6	53.6	53.9	40.6	50.4	59.6	54.7	50.3	46.6		
Colored.....	30.7	38.2	40.9	39.6	55.9	35.6	51.4	42.3	52.7	47.5	44.7	34.2		
California.....	129.6	135.4	140.7	146.0	144.5	138.8	147.6	137.0		144.7				
Connecticut.....	114.4	118.4	103.0	116.2	100.8	103.3	119.8	119.4	109.7	132.8	128.4	109.5	107.0	
Georgia.....	41.5	41.5	36.1	39.7	50.1	44.5	47.4		51.8					
Hawaii Territory.....	89.6	54.0	59.3	67.5	80.2	59.2	36.2	91.8	69.1	74.2	39.9			
Indiana.....	98.5	90.0	101.9	110.9	90.0	107.1	84.9	112.2	132.9	90.8	100.5	93.5	98.9	
Iowa.....	116.0	114.0	112.7	109.1		111.5	106.2	102.7	81.0	112.0				
Kansas.....	107.3	91.8	96.8	86.6	94.2	93.7	100.7	88.2		103.4				
Kentucky.....	61.8	46.6												
Louisiana.....	64.2	61.0	77.4	75.5	63.0	62.8	69.4	71.1		69.9				
White.....	37.9	58.2	73.2	86.7	66.5	62.5	69.0	74.2		70.3				
Colored.....	78.5	62.5	85.0	54.8	56.6	63.4	70.2	65.5		69.0				
Maryland.....						96.9	116.6	102.4	123.1					
White.....						99.7	124.9	112.0	126.6					
Colored.....						82.0	72.9	51.8	104.8					
Michigan.....	90.0	98.9	98.3	89.0	86.7	100.5	102.8	95.1	95.1	92.6				
Minnesota.....	84.8	112.9	112.2	98.6	96.5	97.3	110.3	113.5	121.5	104.7				
Mississippi.....	56.8	45.4	51.6	52.6	61.1	38.8	50.0	49.6		52.3				
White.....	65.6	56.5	57.0	55.2	78.4	44.1	62.0	49.9		57.0				
Colored.....	48.8	35.3	46.8	50.4	45.5	34.0	39.0	49.3		48.0				
Montana.....								86.4						
Nebraska.....	93.5	92.8	100.2	101.2	100.2	102.2	72.8			82.0				
New Jersey.....	116.7	115.9	105.7	110.9	117.8	123.3	104.5	123.6	113.7	112.2	106.2	108.8	106.6	
New York ¹	136.0	115.4	117.9	128.4	118.1	120.1	121.6	125.9	130.5	123.7	116.1	125.7	134.1	
Pennsylvania.....	99.8	101.4	96.6	98.0	91.0	100.4	93.4	90.8	92.6	96.0	96.9	92.7	93.9	
South Carolina.....	37.8	32.2	36.6	49.1	43.1	43.6	36.6	33.3		41.1	45.5			
South Dakota.....	63.0	61.8	74.3	60.2	69.1	66.9	71.9	83.0		63.9				
Tennessee.....	59.9	57.4	63.2	53.6	56.9	62.1	58.8	63.7	51.8	50.8	63.5			
White.....	59.1	58.5	62.2	50.5	52.8	61.3	50.2	62.2	53.9					
Colored.....	64.0	52.3	68.2	68.8	76.8	66.0	71.5	71.0	41.2					
Virginia.....	63.3	63.6	56.7	59.4	56.2	68.6	59.9	53.4	48.9					
White.....	67.9	65.1	62.0	63.8	59.4	75.8	61.3	55.5	55.0					
Colored.....	51.3	59.5	42.7	48.0	47.9	49.6	56.2	47.9	33.1					
Wisconsin.....	109.0	97.3	104.7	104.9	96.8	111.2	117.6	125.7	119.6	103.7				

DIABETES (57)

Alabama.....	6.3	5.2	10.9	6.4	10.0	6.4	5.0	9.5	8.7	6.9	8.0	9.0	5.3	
White.....	8.5	4.9	12.3	5.6	12.3	4.9	5.6	11.6	6.3	8.4	10.9	9.6		
Colored.....	2.9	6.6	8.2	7.9	5.4	9.2	4.0	5.5	13.2	4.0	2.6	7.9		
California.....	26.9	25.6	21.4	18.1	19.0	20.4	21.4	19.5		16.3				
Connecticut.....	23.8	21.5	14.1	17.2	11.9	15.1	12.2	18.5	23.7	18.2				
Georgia.....	8.1	9.9	6.5	6.3	7.6	10.3			11.0					
Hawaii Territory.....	3.7	10.1	13.9	16.9	17.4	19.7	3.3	17.0	19.7	13.5	10.0			
Indiana.....	14.8	16.7	13.8	14.1	11.9	12.2	16.3	17.2		16.3				
Iowa.....	18.3	16.0	18.0	21.3		10.5	11.6	16.0	20.9	20.4				
Kansas.....	22.0	22.5	22.5	19.2	17.2	15.4	21.2	20.6		17.2				
Kentucky.....	10.2	11.1												
Louisiana.....	15.4	17.5	7.0	10.3	6.2	9.7	9.1	15.0		6.9				
White.....	17.5	22.4	6.7	8.4	2.9	11.2	11.2	18.3		9.6				
Colored.....	11.4	8.6	7.1	13.7	12.4	6.0	5.1	8.8		1.8				
Maryland.....						21.9	13.1	13.6	14.6					
White.....						20.8	13.0	11.7	16.5					
Colored.....						22.8	13.7	23.5	4.6					
Michigan.....	21.9	22.8	21.2	23.3	19.3	20.3	17.4	18.0	15.4	20.5				
Minnesota.....	18.6	21.2	13.9	14.7	15.2	9.5	21.2	13.9	13.0	13.4				
Mississippi.....	5.8	10.5	6.5	7.2	2.0	8.6	4.6	4.1		5.4				
White.....	3.1	6.9	7.1	6.9	1.4	8.3	4.1	4.3		8.5				
Colored.....	8.4	13.9	6.5	7.6	2.6	8.8	5.0	3.9		2.6				
Montana.....								8.9						
Nebraska.....	16.7	28.4	24.2	20.1	17.3	25.9	17.6			13.4				
New Jersey.....	27.0	22.8	24.5	22.2	22.6	22.8	17.9	19.1	24.0	21.3				
New York ¹	29.8	28.1	22.9	27.1	22.3	25.4	20.1	20.0	25.8	25.0	20.4	22.3	16.9	
Pennsylvania.....	26.2	22.5	23.4	21.8	16.2	15.2	13.9	20.3	24.0	20.8	18.0	19.0	17.5	
South Carolina.....	11.2	8.8	5.2	7.6	3.3	10.7	11.4	9.1		6.5	4.6			
South Dakota.....	11.1	28.4	8.6	21.7	20.7	10.0	20.1	8.6		6.9				
Tennessee.....	10.4	12.2	9.2	8.0	9.2	8.0	8.9	10.7	7.5	7.5				
White.....	12.6	13.6	8.2	10.2	7.6	8.1	7.4	9.4	7.9					
Colored.....		5.5	14.2	11.0	17.2	2.8	16.5	17.0	5.5					
Virginia.....	8.6	7.8	10.9	7.8	7.1	10.1	10.1	11.3	10.5					
White.....	6.8	7.6	13.1	5.1	6.5	9.5	11.4	12.4	9.5					
Colored.....	14.7	8.3	5.1	14.9	8.6	11.6	6.6	8.5	13.2					

¹ Exclusive of New York City.

Monthly State mortality statistics—Continued

	1929										Corresponding month for—			
	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.		1928	1927	1926	1925
DISEASES OF THE NERVOUS SYSTEM (70-86)														
Alabama.....	95.8	100.7	108.3	111.2	97.9	87.0	96.1	98.8	103.0	87.9				
White.....	86.9	95.3	97.0	99.5	79.7	69.4	78.5	81.1	89.0	72.9				
Colored.....	112.4	110.8	129.4	133.2	132.2	120.0	129.2	132.2	129.2	116.0				
California.....	15.8	142.4	143.4	125.0	139.9	130.8	118.9	118.9		126.8				
Iowa.....	170.2	141.1	144.3	134.3		123.6	120.7	110.7	111.0	130.0				
Kansas.....	162.0	170.0	139.2	143.7	135.9	120.6	132.8	103.4		125.3				
Kentucky.....	112.3	98.7												
Louisiana.....	105.6	89.4	91.7	91.2	101.7	79.7	85.7	81.7		97.3				
White.....	94.0	68.1	80.0	64.3	85.8	69.0	69.9	73.2		77.1				
Colored.....	127.1	128.5	113.3	140.5	131.0	99.3	114.8	97.3		134.5				
Maryland.....						115.8	96.9	118.2	132.6					
White.....						114.5	94.5	113.8	126.6					
Colored.....						123.0	109.4	141.3	104.0					
Michigan.....	142.5	151.8	138.6	145.2	126.1	115.2	135.9	120.1	129.5	124.1				
Minnesota.....	95.6	112.5	90.7	100.8	82.2	91.3	77.4	78.7	81.8	88.2				
Montana.....								77.6						
Nebraska.....	133.3	146.3	108.9	120.4	106.3	77.8	92.8			97.0				
New Jersey.....	181.0	132.2	128.3	112.5	96.5	103.5	88.7	107.6	108.8	110.9	99.9	119.7	125.3	
New York ¹	175.4	170.0	150.4	160.3	119.7	125.9	118.9	126.7	137.1	139.3	142.3	145.6	169.6	
Pennsylvania.....	135.5	131.4	122.4	119.6	94.0	96.0	93.6	98.7	104.2	115.4				
South Dakota.....	103.7	98.7	96.8	83.6	81.2	70.2	98.7	83.0		77.8				
Tennessee.....	104.7	117.2	103.6	106.4	104.1	98.8	83.8	91.9	101.6					
White.....	96.2	104.5	90.3	85.9	91.5	81.8	75.5	75.1	93.1					
Colored.....	146.2	178.8	167.7	206.3	250.2	181.4	123.7	173.2	142.9					
Virginia.....	142.8	123.9	125.7	108.4	108.7	111.6	96.0	105.4	104.7					
White.....	114.8	106.8	101.2	88.4	80.5	97.3	60.0	84.2	91.0					
Colored.....	216.1	168.7	189.9	160.4	158.0	148.9	153.8	160.6	140.6					
CEREBRAL HEMORRHAGE, APOPLEXY (74)														
Alabama.....	55.1	53.9	63.7	68.4	56.6	56.3	55.8	69.0	60.9	55.1	55.8	52.5	43.0	
White.....	32.8	57.5	54.3	58.9	44.9	42.8	46.3	56.5	51.2	39.2	48.8	42.9		
Colored.....	65.7	55.4	79.0	84.4	76.3	81.8	73.8	92.7	79.1	83.1	68.4	69.7		
California.....	105.6	97.7	100.9	91.7	95.3	93.8	89.9	81.2		88.9				
Georgia.....	76.1	65.8	58.1	67.6	77.5	69.5	59.6							
Hawaii Territory.....	71.0	40.5	48.8	50.6	45.3	72.4	55.9	57.8	69.1	84.3	50.7			
Indiana.....	126.0	120.1	104.2	107.1	106.5	104.5	85.6	91.9		96.4	112.1	94.2	102.7	
Iowa.....	125.6	92.6	108.7	98.4		88.7	89.7	85.7	86.8	92.6				
Kansas.....	132.1	133.5	110.8	112.9	106.8	93.0	102.7	81.6		96.8				
Kentucky.....	66.9	58.1												
Louisiana.....	64.8	54.3	61.2	62.2	61.8	50.1	51.3	59.9		61.8				
White.....	56.8	41.0	51.1	44.8	49.1	44.8	39.2	53.0		43.4				
Colored.....	79.6	73.8	79.6	94.2	84.9	60.0	73.7	72.6		95.6				
Maryland.....						88.9	72.9	84.3	105.6					
White.....						88.5	73.7	78.0	98.9					
Colored.....						91.1	68.3	117.7	141.3					
Michigan.....	99.1	112.1	100.2	102.3	89.6	80.0	82.6	85.3	95.9	92.3				
Minnesota.....	60.6	84.4	71.5	77.9	63.0	64.0	58.8	56.8	60.6	67.5				
Mississippi.....	78.6	60.7	64.5	77.6	63.2	71.0	64.4	63.9		67.9				
White.....	79.4	77.2	59.8	66.2	58.4	55.2	52.4	62.7		65.5				
Colored.....	78.1	63.0	69.6	88.2	67.6	55.6	75.4	64.9		70.1				
Montana.....								55.4						
Nebraska.....	95.4	109.5	82.1	92.8	72.6	60.2	71.1			75.3				
New Jersey.....	98.9	97.4	90.1	85.1	67.2	75.5	67.8	76.7	80.1	80.7				
New York ¹	138.5	126.8	115.6	120.8	95.1	95.3	84.2	96.4	109.6	104.4	108.0	112.4	133.6	
Pennsylvania.....	98.1	92.7	88.4	87.5	71.7	76.0	64.5	71.9	77.7	80.7				
South Dakota.....	50.3	60.2	55.3	53.5	50.1	45.2	51.9	48.4		43.2				
Tennessee.....	60.4	59.8	55.9	69.6	59.3	53.2	52.7	55.9	63.1					
White.....	55.9	55.1	45.8	53.4	51.6	47.1	47.1	48.7	58.5					
Colored.....	82.2	82.5	105.2	148.6	96.7	82.5	79.7	90.9	85.2					
Virginia.....	102.3	90.5	90.3	71.3	78.4	84.6	57.6	70.4	78.2					
White.....	82.6	73.7	73.1	57.5	63.4	74.6	41.1	51.6	69.5					
Colored.....	153.8	137.3	135.0	107.5	117.9	110.8	100.9	119.6	100.9					

¹ Exclusive of New York City.

- Monthly State mortality statistics—Continued

	1929									Corresponding month for—			
	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	1928	1927	1926	1925
DISEASES OF THE CIRCULATORY SYSTEM (87-96)													
Alabama.....	142.9	132.7	141.4	149.2	134.3	132.3	138.7	130.0	148.7	133.6	-----	-----	-----
White.....	120.3	110.7	119.5	113.5	107.0	89.7	107.2	97.8	124.0	113.5	-----	-----	-----
Colored.....	185.4	174.1	182.6	216.2	183.9	212.3	197.8	190.8	195.1	171.4	-----	-----	-----
California.....	383.4	372.4	360.2	335.7	326.1	294.1	304.2	286.8	-----	267.3	-----	-----	-----
Iowa.....	287.2	268.2	282.6	271.6	-----	222.1	190.6	231.0	240.0	224.0	-----	-----	-----
Kansas.....	216.7	198.3	198.9	198.0	179.0	-----	160.4	158.5	175.0	109.7	-----	-----	-----
Kentucky.....	198.5	191.9	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Louisiana.....	242.0	213.7	209.6	195.0	195.9	196.8	178.1	176.3	-----	194.7	-----	-----	-----
White.....	194.7	179.0	164.8	148.3	154.2	149.2	140.8	128.2	-----	141.6	-----	-----	-----
Colored.....	330.0	277.5	292.0	280.9	272.6	-----	284.3	248.7	262.0	263.7	-----	-----	-----
Maryland.....	-----	-----	-----	-----	-----	239.7	140.4	218.8	241.9	-----	-----	-----	-----
White.....	-----	-----	-----	-----	-----	230.7	105.5	199.0	230.7	-----	-----	-----	-----
Colored.....	-----	-----	-----	-----	-----	282.5	231.5	282.6	300.7	-----	-----	-----	-----
Michigan.....	273.2	276.7	266.3	278.5	245.4	215.2	206.5	219.7	219.5	240.3	-----	-----	-----
Minnesota.....	185.6	191.6	178.8	189.5	176.1	171.3	153.1	161.4	168.3	172.2	-----	-----	-----
Montana.....	-----	-----	-----	-----	-----	-----	-----	139.6	-----	-----	-----	-----	-----
Nebraska.....	216.6	219.1	173.7	209.1	146.9	168.2	13.5	-----	-----	152.2	-----	-----	-----
New Jersey.....	344.9	305.4	297.4	258.5	255.1	233.9	192.3	222.6	108.8	250.8	229.9	211.6	224.4
New York ¹	441.9	382.3	369.9	341.2	297.2	301.3	305.2	304.7	337.7	335.4	309.8	326.1	339.3
Pennsylvania.....	299.7	278.4	259.7	248.0	217.5	208.7	190.9	201.2	237.3	236.1	-----	-----	-----
South Carolina.....	292.3	291.2	266.6	296.9	312.0	272.9	296.9	277.4	-----	283.3	273.0	-----	-----
South Dakota.....	150.0	155.5	134.8	160.6	115.8	95.3	148.9	100.2	-----	129.6	-----	-----	-----
Tennessee.....	159.4	160.0	136.6	149.2	149.8	142.6	120.0	134.2	135.1	-----	-----	-----	-----
White.....	134.5	130.0	116.2	132.3	119.1	113.0	97.4	111.5	109.6	-----	-----	-----	-----
Colored.....	280.2	305.4	235.9	231.1	268.5	285.8	219.9	244.2	258.4	-----	-----	-----	-----
Virginia.....	217.7	218.6	164.4	185.2	174.3	149.1	140.4	145.1	177.9	-----	-----	-----	-----
White.....	191.5	174.4	150.9	159.9	145.0	130.8	105.5	121.5	157.4	-----	-----	-----	-----
Colored.....	278.3	334.1	200.0	251.4	251.2	190.8	231.5	206.8	231.5	-----	-----	-----	-----
DISEASES OF THE HEART (87-90)													
Alabama.....	125.6	117.9	132.6	140.4	125.0	124.0	125.4	122.0	136.8	121.6	91.9	98.4	85.5
White.....	108.6	103.0	110.8	105.1	96.9	86.9	93.9	90.5	111.4	103.0	77.3	82.0	-----
Colored.....	175.2	163.5	171.7	205.7	177.1	193.8	184.6	181.3	184.6	155.6	118.4	127.5	-----
California.....	338.2	320.2	317.0	299.0	286.3	258.7	267.5	259.6	-----	223.0	-----	-----	-----
Connecticut.....	219.2	212.4	194.3	190.9	155.0	170.0	154.3	153.5	187.1	156.8	155.9	161.6	172.4
Georgia.....	96.9	95.9	107.5	105.9	141.7	117.7	102.9	-----	117.3	-----	-----	-----	-----
Hawaii Territory.....	141.9	138.5	132.5	141.7	118.5	92.1	102.0	119.1	95.4	114.7	83.3	-----	-----
Indiana.....	198.7	243.2	199.2	228.0	222.2	187.6	167.9	186.2	-----	201.7	179.4	158.3	148.4
Iowa.....	254.0	233.7	251.1	239.6	-----	197.4	167.3	209.5	209.5	190.6	-----	-----	-----
Kansas.....	185.4	173.9	173.1	175.2	153.2	139.9	131.5	151.8	-----	153.2	-----	-----	-----
Kentucky.....	158.3	160.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Louisiana.....	221.3	193.8	192.8	183.6	177.8	182.9	167.3	159.7	-----	179.1	-----	-----	-----
White.....	178.6	160.4	150.3	137.1	137.8	138.9	131.5	115.6	-----	134.9	-----	-----	-----
Colored.....	299.6	255.2	270.8	268.9	251.3	263.8	233.0	240.7	-----	260.2	-----	-----	-----
Maryland.....	-----	-----	-----	-----	-----	204.0	199.6	183.7	218.6	-----	-----	-----	-----
White.....	-----	-----	-----	-----	-----	198.6	184.7	174.8	208.1	-----	-----	-----	-----
Colored.....	-----	-----	-----	-----	-----	232.4	278.0	230.7	273.4	-----	-----	-----	-----
Michigan.....	235.7	240.8	238.5	240.0	218.1	285.2	177.7	186.6	188.5	215.4	-----	-----	-----
Minnesota.....	150.5	147.5	100.1	152.7	136.8	140.6	121.5	127.8	132.8	144.5	-----	-----	-----
Mississippi.....	112.8	99.3	106.7	111.8	108.0	127.0	111.8	87.6	-----	99.9	-----	-----	-----
White.....	114.5	102.0	95.5	95.1	84.1	91.0	104.8	69.8	-----	88.3	-----	-----	-----
Colored.....	111.5	97.0	117.1	127.2	130.1	159.9	118.1	103.9	-----	110.4	-----	-----	-----
Montana.....	-----	-----	-----	-----	-----	-----	-----	126.3	-----	-----	-----	-----	-----
Nebraska.....	196.3	194.0	173.7	187.3	132.2	145.5	117.1	-----	-----	136.3	-----	-----	-----
New Jersey.....	324.4	277.6	276.1	236.0	226.7	214.8	273.5	207.3	241.9	229.0	-----	-----	-----
New York ¹	391.7	358.9	322.0	292.6	257.9	282.4	261.6	258.6	292.4	291.3	264.4	284.6	288.9
Pennsylvania.....	273.9	248.8	232.3	221.3	196.7	185.9	172.8	178.3	214.3	214.0	199.5	202.0	182.0
South Dakota.....	129.6	138.8	115.8	142.2	102.0	78.9	117.1	95.0	-----	112.3	-----	-----	-----
Tennessee.....	148.0	150.1	125.0	137.9	135.7	128.0	106.4	122.5	120.9	126.1	-----	-----	-----
White.....	125.1	121.5	92.7	122.6	108.5	97.7	83.5	102.1	94.3	-----	-----	-----	-----
Colored.....	258.9	288.9	201.8	211.8	267.2	274.8	217.1	221.5	250.1	-----	-----	-----	-----
Virginia.....	193.4	202.6	149.3	171.0	156.4	129.5	121.6	129.0	158.7	-----	-----	-----	-----
White.....	171.4	160.5	134.5	145.4	129.3	121.3	89.1	107.8	137.8	-----	-----	-----	-----
Colored.....	250.9	312.6	188.0	238.2	227.3	186.9	206.7	184.6	213.4	-----	-----	-----	-----

¹ Exclusive of New York City.

Monthly State mortality statistics—Continued

	1929										Corresponding month for—			
	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.		1928	1927	1926	1925
DISEASES OF THE RESPIRATORY SYSTEM (97-107)														
Alabama.....	128.1	125.4	102.6	84.7	61.0	37.1	40.7	42.1	68.6	65.4	-----	-----	-----	-----
White.....	100.9	114.9	84.7	63.1	48.5	24.5	34.3	39.8	58.9	59.6	-----	-----	-----	-----
Colored.....	165.0	145.1	136.2	125.3	84.5	60.7	52.7	46.3	87.0	76.5	-----	-----	-----	-----
California.....	152.2	167.2	139.1	98.5	92.1	64.4	56.3	63.6	-----	68.1	-----	-----	-----	-----
Iowa.....	112.7	91.2	82.2	71.3	-----	43.2	35.4	47.6	54.3	61.6	-----	-----	-----	-----
Kansas.....	135.0	141.2	86.2	50.0	33.8	20.5	37.2	27.8	-----	32.5	-----	-----	-----	-----
Kentucky.....	197.6	134.2	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Louisiana.....	126.3	120.2	80.5	65.2	61.8	51.3	56.2	54.3	-----	54.9	-----	-----	-----	-----
White.....	87.8	97.9	51.1	42.0	49.1	28.9	39.2	37.6	-----	38.5	-----	-----	-----	-----
Colored.....	197.2	136.7	134.5	107.9	84.9	92.5	87.4	85.0	-----	84.9	-----	-----	-----	-----
Maryland.....	-----	-----	-----	-----	-----	56.1	53.2	61.0	96.9	-----	-----	-----	-----	-----
White.....	-----	-----	-----	-----	-----	34.7	37.3	48.4	74.6	-----	-----	-----	-----	-----
Colored.....	-----	-----	-----	-----	-----	168.6	136.7	127.1	200.6	-----	-----	-----	-----	-----
Michigan.....	155.5	147.0	130.1	121.8	87.5	42.6	45.4	51.9	79.0	76.2	-----	-----	-----	-----
Minnesota.....	74.8	83.1	74.2	71.8	49.2	35.0	32.9	43.4	64.9	56.2	-----	-----	-----	-----
Montana.....	-----	-----	-----	-----	-----	-----	-----	24.4	-----	-----	-----	-----	-----	-----
Nebraska.....	131.5	107.9	75.2	56.9	40.6	22.6	17.7	-----	-----	27.6	-----	-----	-----	-----
New Jersey.....	203.0	174.1	116.9	101.4	62.7	50.5	45.3	49.4	69.9	78.3	-----	-----	-----	-----
New York ¹	185.4	152.6	134.2	109.2	73.6	46.7	48.2	51.1	86.2	82.5	71.6	82.3	103.6	-----
Pennsylvania.....	184.2	144.4	117.6	99.1	67.1	47.7	47.8	61.2	90.1	88.9	-----	-----	-----	-----
South Dakota.....	98.1	92.0	81.2	75.3	44.9	46.8	55.2	31.1	-----	31.1	-----	-----	-----	-----
Tennessee.....	157.3	156.7	97.7	74.8	50.1	44.7	50.4	66.6	79.5	-----	-----	-----	-----	-----
White.....	133.9	127.7	83.3	59.0	37.5	36.9	41.5	54.6	87.6	-----	-----	-----	-----	-----
Colored.....	271.1	297.1	167.7	151.3	110.9	82.5	93.4	125.0	137.4	-----	-----	-----	-----	-----
Virginia.....	132.6	119.8	79.9	71.8	41.6	35.2	38.4	41.1	82.2	-----	-----	-----	-----	-----
White.....	98.7	97.3	61.4	53.7	30.7	31.0	26.5	26.8	43.0	-----	-----	-----	-----	-----
Colored.....	221.6	178.6	128.2	119.1	70.1	46.3	69.5	78.6	112.5	-----	-----	-----	-----	-----
PNEUMONIA, ALL FORMS (100, 101)														
Alabama.....	111.6	110.5	97.9	79.8	53.4	32.5	34.8	31.7	56.7	54.1	57.2	58.7	33.2	-----
White.....	98.9	107.2	80.4	60.3	41.3	21.7	23.0	32.6	47.7	46.3	45.9	51.7	-----	-----
Colored.....	160.6	133.2	129.4	116.0	76.8	52.7	47.5	30.0	73.8	68.6	77.6	71.0	-----	-----
California.....	185.6	152.5	119.4	83.5	76.9	64.8	45.2	47.8	-----	57.4	-----	-----	-----	-----
Connecticut.....	232.0	142.8	104.5	86.8	54.1	43.8	35.2	44.5	60.7	73.7	59.4	55.1	96.2	-----
Georgia.....	97.3	77.6	70.3	46.7	52.4	34.2	24.3	-----	47.1	-----	-----	-----	-----	-----
Hawaii Territory.....	254.0	158.7	217.5	202.4	139.4	121.7	157.9	105.5	102.0	134.9	155.8	-----	-----	-----
Illinois.....	74.2	120.0	92.2	86.6	57.6	34.2	30.7	36.2	50.9	60.3	51.7	47.0	51.9	-----
Indiana.....	169.6	137.9	83.5	65.6	50.2	24.8	28.2	55.2	94.1	61.5	67.7	65.2	70.8	-----
Iowa.....	96.1	77.6	71.7	40.2	-----	36.4	28.7	37.6	45.1	50.4	-----	-----	-----	-----
Kansas.....	113.0	125.8	76.9	41.1	23.9	13.5	28.2	23.2	-----	25.9	-----	-----	-----	-----
Kentucky.....	180.3	116.7	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Louisiana.....	111.6	118.3	68.0	52.5	58.0	43.5	46.9	48.7	-----	41.2	-----	-----	-----	-----
White.....	80.5	88.6	41.4	31.7	45.3	24.2	29.8	32.8	-----	28.9	-----	-----	-----	-----
Colored.....	168.8	173.0	116.8	90.8	81.4	78.8	75.4	77.9	-----	63.7	-----	-----	-----	-----
Maryland.....	-----	-----	-----	-----	-----	46.6	45.2	52.0	89.6	-----	-----	-----	-----	-----
White.....	-----	-----	-----	-----	-----	27.8	31.2	41.2	66.8	-----	-----	-----	-----	-----
Colored.....	-----	-----	-----	-----	-----	145.8	118.5	108.3	205.0	-----	-----	-----	-----	-----
Michigan.....	136.5	125.2	114.2	106.7	73.4	33.6	33.9	41.3	62.8	61.3	-----	-----	-----	-----
Minnesota.....	71.4	72.2	68.4	65.3	39.8	28.1	29.4	36.2	56.2	51.0	-----	-----	-----	-----
Mississippi.....	107.0	110.4	63.2	38.8	26.5	15.1	19.7	38.7	-----	29.9	-----	-----	-----	-----
White.....	103.8	106.2	48.4	41.4	17.1	13.8	22.4	44.2	-----	22.8	-----	-----	-----	-----
Colored.....	110.1	114.6	70.8	26.5	35.0	16.4	16.3	33.8	-----	36.4	-----	-----	-----	-----
Montana.....	-----	-----	-----	-----	-----	-----	-----	17.7	-----	-----	-----	-----	-----	-----
Nebraska.....	115.7	96.2	65.7	51.0	35.4	16.7	11.7	-----	-----	18.4	-----	-----	-----	-----
New Jersey.....	187.3	153.8	99.4	91.2	51.0	44.1	37.0	39.8	61.3	68.4	32.0	33.3	54.9	-----
New York ¹	165.8	135.6	116.7	92.4	62.8	37.6	39.3	42.5	71.8	65.9	59.8	65.5	87.8	-----
North Carolina.....	177.5	130.2	113.5	81.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Pennsylvania.....	162.0	142.8	97.7	85.0	52.7	38.9	37.5	49.3	75.3	72.8	67.7	73.3	92.2	-----
South Carolina.....	125.2	130.1	90.7	77.1	62.0	37.9	44.8	56.1	-----	-----	-----	-----	-----	-----
South Dakota.....	77.8	85.3	62.2	68.6	34.6	36.8	46.8	25.9	-----	20.7	-----	-----	-----	-----
Tennessee.....	146.4	140.7	86.6	66.4	39.4	33.9	41.4	55.9	66.4	59.3	57.3	-----	-----	-----
White.....	125.1	114.7	73.9	53.4	31.7	28.4	34.1	46.9	55.6	-----	-----	-----	-----	-----
Colored.....	249.8	266.8	147.8	129.3	76.8	60.5	70.7	99.4	118.2	-----	-----	-----	-----	-----
Virginia.....	120.5	104.7	68.0	60.4	36.9	26.5	28.3	31.7	52.1	-----	-----	-----	-----	-----
White.....	90.3	87.2	50.9	44.9	28.1	24.0	20.2	20.2	36.0	-----	-----	-----	-----	-----
Colored.....	169.6	150.5	112.8	100.9	59.8	33.1	51.3	61.5	94.3	-----	-----	-----	-----	-----
Wisconsin.....	120.5	88.9	84.5	78.9	49.0	30.0	29.9	-----	0	58.2	-----	-----	-----	-----

¹ Exclusive of New York City.

Monthly State mortality statistics—Continued.

	1929										Corresponding month for—			
	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.		1928	1927	1926	1925
DISEASES OF THE DIGESTIVE SYSTEM (108-127)														
Alabama.....	51.2	155.6	61.9	106.2	147.5	139.1	107.5	100.7	67.7	91.5				
White.....	46.6	141.6	46.3	101.6	143.4	86.0	100.2	92.0	64.5	94.6				
Colored.....	59.9	182.0	91.3	104.7	155.3	145.0	121.3	117.2	73.8	86.7				
California.....	85.6	91.2	94.5	92.0	103.9	112.9	103.6	111.1		86.7				
Hawaii Territory.....	186.8	209.2	198.7	182.2	174.3	180.9	167.9	132.7	115.1	124.8	173.9			
Iowa.....	58.0	73.7	66.6	62.1		68.9	62.1	66.6	62.1	76.1				
Kansas.....	63.9	73.1	84.2	62.9	76.3	85.3	91.1	82.2		141.2				
Kentucky.....	52.1	55.3												
Louisiana.....	78.2	80.9	78.6	112.3	128.5	122.6	105.7	111.1		114.2				
White.....	76.4	79.3	56.9	87.7	86.7	106.3	86.7	86.7		108.9				
Colored.....	81.5	83.9	118.6	157.6	205.3	152.4	140.5	155.8		123.9				
Maryland.....														
White.....						80.7	124.9	99.5	83.3					
Colored.....						173.1	236.9	193.1	168.6					
Michigan.....	92.2	82.8	80.6	90.5	89.0	78.2	95.7	128.3	101.6	94.6				
Minnesota.....	59.3	62.3	63.5	67.9	59.0	64.5	64.0	63.0	56.2	64.9				
Montana.....								88.6						
Nebraska.....	81.5	73.6	73.4	71.9	55.3	71.1	86.1			107.0				
New Jersey.....	61.1	86.3	76.1	75.8	73.6	74.6	71.8	92.7	79.5	78.6	66.9	55.7		60.8
New York.....	71.9	74.2	69.9	71.5	62.0	64.7	70.0	93.6	80.2	73.7	85.1	94.1		105.3
Pennsylvania.....	74.8	73.6	75.0	61.4	62.9	71.5	87.2	120.3	82.3	86.4				
South Dakota.....	72.2	68.6	58.8	78.0	44.9	58.5	80.3	95.0		74.3				
Tennessee.....	60.4	66.8	70.0	71.1	110.9	171.8	133.2	98.2	101.2					
White.....	47.1	60.7	55.1	63.0	142.1	160.7	127.2	90.9	89.1					
Colored.....	124.9	96.3	142.1	110.0	104.4	225.4	162.2	133.5	159.4					
Virginia.....	48.1	55.8	62.0	60.4	102.5	104.3	96.7	69.9	64.0					
White.....	38.5	46.1	47.7	36.7	73.8	87.9	87.8	59.4	56.0					
Colored.....	73.3	81.0	63.2	122.4	177.7	147.2	130.7	97.4	86.0					

DIARRHEA AND ENTERITIS UNDER 2 YEARS (113)

Alabama.....	5.8	7.0	12.4	40.8	64.8	62.7	33.4	28.4	22.0	30.7	20.6	35.0	33.6
White.....	3.9	10.5	5.8	38.5	65.9	67.3	30.8	26.8	21.0	37.1	25.5	39.9	
Colored.....	10.2	1.3	24.5	44.8	62.7	54.1	38.2	31.3	23.7	18.5	11.8	26.3	
California.....	9.2	8.5	11.2	17.6	23.0	28.4	27.1	27.0		19.8			
Connecticut.....	15.9	5.7	5.2	11.5	8.2	5.0	17.9						
Georgia.....	6.9	7.4	12.2	22.8	35.3	29.8	27.6		12.9				
Hawaii Territory.....								98.7	65.8				
Indiana.....	6.6	11.9	5.7	7.4	10.3	25.6	47.1	43.7	31.0	28.2	37.4	41.8	53.3
Iowa.....	1.1	2.9	4.5	2.9		3.9	5.8	4.5	1.9	12.1			
Kansas.....	5.7	12.2	7.3	4.5	6.0	12.2	19.2	24.5		40.4			
Kentucky.....	8.2	8.3											
Louisiana.....	19.4	26.0	22.4	34.4	49.3	34.4	31.4	29.9		26.8			
White.....	17.5	23.3	15.4	21.4	27.0	28.9	22.4	19.3		26.0			
Colored.....	22.7	30.8	35.4	58.2	90.3	44.5	48.0	49.6		28.3			
Maryland.....									19.7				
White.....									16.5				
Colored.....									36.5				
Michigan.....	19.2	9.0	11.1	12.6	11.4	10.0	23.1	44.2	28.0				
Minnesota.....	4.3	4.3	3.6	3.9	3.1	2.2	6.5	3.6	4.3	6.1			
Mississippi.....	4.4	7.2	12.2	32.9	55.0	50.0	25.0	18.3		24.5			
White.....	3.1	4.1	14.3	28.9	59.8	49.6	15.2	18.5		27.1			
Colored.....	5.6	10.1	10.4	36.6	105.4	50.4	33.9	18.2		22.1			
Montana.....								19.9					
Nebraska.....	9.3	5.9	5.2	3.3	3.5	3.3	12.5			23.4			
New Jersey.....	7.2	10.2	10.5	7.7	6.4	10.2	17.3	29.6	19.4	16.9	17.3	23.7	32.1
New York.....	9.6	9.5	7.9	8.7	7.2	6.0	13.9	23.9	16.7	15.2	19.9	27.9	38.5
North Carolina.....	10.2	4.0	11.2	38.5									
Pennsylvania.....	14.0	15.2	12.3	10.2	8.6	15.6	28.4	52.2	26.4	30.0	42.3	58.3	67.5
South Dakota.....	5.6	6.7	6.9	3.3	1.7	1.7	10.0	17.3		12.1			
Tennessee.....	3.6	8.9	6.8	10.4	38.9	77.7	53.6	36.5	29.2	35.8	21.8		
White.....	3.8	8.0	5.3	7.4	38.7	74.4	55.6	38.7	27.8				
Colored.....	3.1	13.8	14.2	24.8	39.8	93.5	44.0	25.6	35.7				
Virginia.....	5.6	5.5	3.3	12.3	37.3	50.3	37.0	27.9	16.5	22.9			
White.....	4.2	4.4	3.3	6.3	18.9	41.7	32.9	26.8	17.1	18.9			
Colored.....	9.9	8.8	8.4	28.1	85.5	72.8	48.0	30.8	14.9	33.1			
Wisconsin.....	15.9	14.4	11.9	14.8	9.5	6.8	8.0	9.4	8.8	8.4			

¹ Exclusive of New York City.

Monthly State mortality statistics—Continued

	1929									Corresponding month for—			
	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	1928	1927	1926	1925
NEPHRITIS (128,129)													
Alabama.....	85.6	95.2	91.7	104.3	96.9	95.2	92.9	78.1	99.3	—	—	—	—
White.....	78.0	78.5	79.7	80.6	71.0	84.1	79.2	60.1	70.1	—	—	—	—
Colored.....	103.6	126.6	114.4	149.0	145.8	116.0	118.7	106.3	154.3	—	—	—	—
California.....	128.5	106.5	128.2	106.7	108.7	98.5	91.0	84.9	—	100.1	—	—	—
Connecticut.....	100.9	67.4	68.2	116.2	54.9	46.6	35.2	56.3	70.3	60.5	—	—	—
Georgia.....	184.7	105.1	117.8	111.1	123.1	115.8	111.8	—	126.8	—	—	—	—
Indiana.....	85.4	100.1	95.0	92.7	74.3	73.8	63.8	70.9	—	75.6	75.1	84.8	76.1
Iowa.....	56.9	60.1	61.6	56.7	—	42.2	36.9	52.1	41.2	52.4	—	—	—
Kansas.....	104.4	98.8	94.8	93.0	92.8	77.6	69.9	80.2	—	88.2	—	—	—
Kentucky.....	84.8	68.7	—	—	—	—	—	—	—	—	—	—	—
Louisiana.....	131.7	111.1	112.3	115.9	120.4	99.0	108.7	106.7	—	93.6	—	—	—
White.....	115.6	87.6	84.8	79.3	90.6	82.1	88.6	90.6	—	69.4	—	—	—
Colored.....	161.2	154.1	162.8	183.3	175.2	130.2	145.6	136.3	—	138.0	—	—	—
Maryland.....	—	—	—	—	—	123.9	133.3	124.2	157.4	—	—	—	—
White.....	—	—	—	—	—	117.1	127.5	110.2	148.3	—	—	—	—
Colored.....	—	—	—	—	—	191.4	154.9	197.8	205.0	—	—	—	—
Michigan.....	75.4	74.9	73.4	67.4	72.6	59.8	62.6	62.8	61.0	68.2	—	—	—
Minnesota.....	66.2	56.7	54.1	49.7	48.7	42.4	39.4	40.2	46.7	52.8	—	—	—
Mississippi.....	115.0	107.8	112.1	70.3	117.5	106.6	92.0	99.9	—	81.5	—	—	—
White.....	97.7	86.9	89.6	101.2	74.1	84.1	74.5	63.4	—	86.9	—	—	—
Colored.....	131.1	127.2	128.5	132.7	147.0	127.2	108.1	128.5	—	76.6	—	—	—
Montana.....	—	—	—	—	—	—	—	68.7	—	—	—	—	—
Nebraska.....	64.8	62.7	67.0	61.0	61.8	56.9	51.8	—	—	44.3	—	—	—
New Jersey.....	125.5	110.6	104.4	102.6	101.3	85.7	78.0	89.8	99.5	91.5	90.8	84.7	101.1
New York ¹	129.1	122.2	124.1	111.0	103.4	91.0	99.3	94.7	102.8	100.6	101.8	108.0	116.9
Pennsylvania.....	112.5	109.8	102.3	105.8	88.6	83.9	80.7	85.4	98.4	99.9	85.4	100.0	100.0
South Dakota.....	27.8	26.8	31.1	35.1	36.3	38.5	51.9	32.8	—	41.5	—	—	—
Tennessee.....	65.1	78.6	77.3	69.2	71.0	73.9	69.6	76.4	73.9	—	—	—	—
White.....	57.8	64.7	67.5	62.5	59.8	57.9	60.2	64.5	60.2	—	—	—	—
Colored.....	100.5	145.8	125.1	101.8	125.1	151.2	115.4	133.5	140.2	—	—	—	—
Virginia.....	107.8	109.3	89.8	74.1	91.7	97.4	88.2	95.4	89.6	—	—	—	—
White.....	99.4	99.9	79.7	67.0	81.0	88.5	72.7	78.4	81.5	—	—	—	—
Colored.....	130.0	134.0	116.2	92.6	119.6	120.8	129.0	140.1	110.8	—	—	—	—

PUERPERAL STATE (148-150)

Alabama.....	17.4	13.9	23.8	23.9	29.0	12.4	25.2	23.2	18.3	21.1	14.5	17.0	17.8
White.....	14.0	13.3	17.4	19.6	20.3	8.4	20.3	13.8	12.6	19.6	13.1	17.0	—
Colored.....	26.3	17.1	35.4	31.6	45.0	19.8	34.3	40.9	29.0	23.7	17.1	17.0	—
California.....	6.0	9.3	12.8	10.3	7.7	11.4	9.6	6.7	—	10.4	—	—	—
Connecticut.....	16.7	10.0	4.4	5.0	12.6	8.6	8.6	3.7	8.6	9.5	11.9	7.6	13.9
Georgia.....	19.1	14.7	14.8	19.5	13.3	13.2	18.0	—	18.7	—	—	—	—
Indiana.....	9.9	18.9	10.7	12.2	15.3	10.2	11.9	10.7	9.7	9.3	9.7	10.9	7.2
Iowa.....	9.7	13.1	10.5	8.2	—	8.2	8.2	11.0	7.3	12.1	—	—	—
Kansas.....	10.7	14.8	10.6	11.5	16.6	12.2	12.2	5.3	—	9.9	—	—	—
Kentucky.....	11.7	12.9	—	—	—	—	—	—	—	—	—	—	—
Louisiana.....	11.4	22.9	25.6	21.1	16.8	21.7	25.4	25.0	—	19.3	—	—	—
White.....	10.3	15.8	25.1	16.8	10.6	12.1	17.7	16.4	—	18.3	—	—	—
Colored.....	13.3	36.0	26.5	29.1	28.3	39.4	39.4	40.7	—	21.2	—	—	—
Maryland.....	—	—	—	—	—	11.7	14.6	7.5	7.3	—	—	—	—
White.....	—	—	—	—	—	8.7	13.0	6.3	5.2	—	—	—	—
Colored.....	—	—	—	—	—	27.3	22.8	14.1	18.2	—	—	—	—
Michigan.....	14.2	17.2	17.2	11.0	13.5	16.9	10.0	10.6	11.0	9.7	—	—	—
Minnesota.....	8.7	9.1	8.5	5.2	7.2	4.8	5.2	4.5	2.9	5.6	—	—	—
Montana.....	—	—	—	—	—	—	—	8.9	—	—	—	—	—
Nebraska.....	13.0	13.4	6.9	10.9	14.7	10.0	6.7	—	—	12.6	—	—	—
New Jersey.....	8.9	10.2	10.5	10.2	8.9	9.2	10.8	8.9	8.0	12.6	—	—	—
New York ¹	11.4	12.4	4.1	11.2	8.5	8.3	6.8	8.8	8.5	7.6	9.9	6.8	8.0
South Dakota.....	14.8	13.4	15.6	6.7	6.9	13.4	11.7	8.6	—	12.1	—	—	—
Tennessee.....	12.5	17.4	20.9	16.0	8.3	17.4	15.5	13.1	12.2	—	—	—	—
White.....	8.2	15.3	20.0	13.6	8.8	15.3	13.1	13.5	7.4	—	—	—	—
Colored.....	33.5	27.5	25.5	27.5	5.7	27.5	27.5	11.4	35.7	—	—	—	—
Virginia.....	16.2	13.3	15.1	17.8	13.7	13.3	18.3	9.0	10.1	—	—	—	—
White.....	10.5	10.1	10.5	10.1	11.1	10.7	9.5	5.9	7.0	—	—	—	—
Colored.....	31.1	21.5	27.3	33.0	20.5	19.9	23.2	17.1	18.2	—	—	—	—

¹ Exclusive of New York City.

DEATH RATES IN A GROUP OF INSURED PERSONS

Rates for Principal Causes of Death for November, 1929

The accompanying table, taken from the Statistical Bulletin for December, 1929, issued by the Metropolitan Life Insurance Co., presents the mortality record of the industrial insurance department of the company for November and the cumulative death rates for the period January to November, inclusive, for the years 1929 and 1928, for the principal causes of death. The rates are based on a strength of approximately 19,000,000 insured persons in the United States and Canada.

It is stated that the death rate in this group of persons was lower in November, 1929, than in any previous November on record. More or less noteworthy declines as compared with November, 1928, are shown for typhoid fever, measles, influenza, tuberculosis, cerebral hemorrhage, heart disease, respiratory conditions other than pneumonia, diarrheal complaints, Bright's disease, puerperal diseases, homicides, and accidents. On the other hand, somewhat higher death rates were registered for scarlet fever, whooping cough, diphtheria, cancer, and pneumonia, and there was an increase of 17.2 per cent in the mortality from automobile accidents. The November death rate for all causes combined was 5.4 per cent below that for October.

The year-to-date death rate at the end of November was 9.2 per 1,000. This is practically the same as the death rate for the corresponding period of last year. Among the policyholders living west of the Rocky Mountains, the cumulative death rate was 6.7 per 1,000, while for the remainder of the United States it was 9.4. These figures are identical with those recorded for the like period of 1928.

The tuberculosis death rate in this group has been lower this year than ever before, and it is stated that new minimums will also be established for diphtheria, puerperal diseases, and, in all probability, for typhoid fever.

Death rates (annual basis) per 100,000 for principal causes of death, November, 1929

[Industrial department, Metropolitan Life Insurance Co.]

Cause of death	Death rate per 100,000 lives exposed ¹				
	November, 1929	October, 1929	November, 1928	Cumulative, January to November	
				1929	1928
Total, all causes	790.7	836.1	830.8	920.6	915.7
Typhoid fever.....	2.4	3.6	2.9	2.3	2.7
Measles.....	.4	.4	.9	3.0	5.5
Scarlet fever.....	1.8	1.3	1.5	2.5	2.7
Whooping cough.....	3.7	3.8	3.0	5.8	5.6
Diphtheria.....	11.8	8.3	9.9	8.4	9.6
Influenza.....	13.1	9.1	14.2	42.2	22.0
Tuberculosis (all forms).....	73.2	79.7	76.3	85.9	91.1
Tuberculosis of respiratory system.....	65.4	68.9	66.3	75.9	79.7
Cancer.....	73.8	76.6	72.3	75.8	75.2
Diabetes mellitus.....	16.6	16.7	16.6	18.2	17.5
Cerebral hemorrhage.....	50.6	55.5	52.2	56.2	56.1
Organic diseases of heart.....	126.1	123.1	138.6	143.8	142.0
Pneumonia (all forms).....	64.1	53.1	63.7	87.3	88.6
Other respiratory diseases.....	9.2	10.4	17.0	11.8	13.3
Diarrhea and enteritis.....	15.0	31.6	19.3	20.9	24.7
Bright's disease (chronic nephritis).....	63.1	66.8	65.8	68.3	70.3
Puerperal state.....	31.1	10.4	11.8	13.1	14.0
Suicides.....	7.7	8.4	7.7	8.4	8.3
Homicides.....	5.3	7.6	6.7	6.3	6.5
Other external causes (excluding suicides and homicides).....	61.7	65.7	64.0	63.4	62.8
Traumatism by automobiles.....	23.9	25.7	20.4	19.0	17.8
All other causes.....	179.8	199.1	186.5	196.9	197.0

¹ All figures include infants insured under 1 year of age.**DEATHS DURING WEEK ENDED JANUARY 11, 1930**

Summary of information received by telegraph from industrial insurance companies for the week ended January 11, 1930, and corresponding week of 1929. (From the Weekly Health Index, January 15, 1930, issued by the Bureau of the Census, Department of Commerce)

	Week ended Jan 11, 1930	Corresponding week, 1929
Policies in force.....	75, 421, 100	72, 792, 965
Number of death claims.....	16, 253	19, 612
Death claims per 1,000 policies in force, annual rate.....	11.2	14.0

Deaths from all causes in certain large cities of the United States during the week ended January 11, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index, January 15, 1930, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Jan. 11, 1930		Annual death rate per 1,000, corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Jan. 11, 1930 ¹
	Total deaths	Death rate ¹		Week ended Jan 11, 1930	Corresponding week, 1929	
Total (65 cities).....	7,588	13.3	20.5	721	1,047	84
Akron.....	32			6	9	55
Albany.....	43	18.6	21.7	1	4	22
Atlanta.....	83	17.0	23.1	4	5	42
White.....	43			2	3	63
Colored.....	40	(⁹)	(⁹)	2	2	32
Baltimore.....	244	15.8	24.9	19	34	65
White.....	185			11	20	47
Colored.....	59	(⁹)	(⁹)	8	14	129
Birmingham.....	50	11.7	61.4	6	21	56
White.....	21			4	11	62
Colored.....	29	(⁹)	(⁹)	2	10	47
Boston.....	262	17.1	19.3	36	26	101
Bridgeport.....	43			6	3	103
Buffalo.....	160	15.0	25.1	17	26	76
Cambridge.....	35	14.5	16.2	4	4	74
Camden.....	30	13.9	23.5	7	7	127
Canton.....	17	7.6	21.0	3	5	74
Chicago.....	768	12.7	17.4	79	111	70
Cincinnati.....	134			9	25	63
Cleveland.....	196	10.1	21.5	19	39	67
Columbus.....	71	12.4	29.5	2	16	20
Dallas.....	55	13.2	26.4	7	11	
White.....	43			6	8	
Colored.....	12	(⁹)	(⁹)	1	3	
Dayton.....	37	10.5	25.2	6	8	80
Denver.....	79	14.0	19.3	2	11	21
Des Moines.....	43	14.8	13.7	1	0	17
Detroit.....	304	11.5	20.6	55	81	85
Duluth.....	22	9.8	10.7	1	1	27
El Paso.....	52	23.0	23.0	8	9	
Erie.....	20			3	3	64
Fall River.....	25	9.7	20.2	5	8	114
Flint.....	27	9.5	23.1	3	5	35
Fort Worth.....	38	11.6	24.8	3	8	
White.....	36			3	6	
Colored.....	2	(⁹)	(⁹)	0	2	
Grand Rapids.....	32	10.2	14.0	2	3	30
Houston.....	59			5	8	
White.....	39			2	6	
Colored.....	20	(⁹)	(⁹)	3	2	
Indianapolis.....	128	17.5	17.5	9	14	67
White.....	98			8	13	69
Colored.....	30	(⁹)	(⁹)	1	1	54
Jersey City.....	78	12.5	18.9	13	10	113
Kansas City, Kans.....	32	14.1	15.9	2	6	47
White.....	27			2	3	53
Colored.....	5	(⁹)	(⁹)	0	3	0
Kansas City, Mo.....	104	18.9	13.2	12	11	93
Knoxville.....	32	15.8	27.7	4	8	94
White.....	26			3	8	78
Colored.....	6	(⁹)	(⁹)	1	0	247
Los Angeles.....	313			38	26	116
Louisville.....	49	7.8	20.4	2	12	17
White.....	34			0	9	0
Colored.....	15	(⁹)	(⁹)	2	3	145
Lowell.....	20			2	3	47
Lynn.....	23	11.4	11.9	2	0	51
Memphis.....	73	20.0	38.4	3	13	36
White.....	42			3	7	5
Colored.....	31	(⁹)	(⁹)	0	6	0
Milwaukee.....	114	10.9	20.1	19	23	96
Minneapolis.....	112	12.8	20.4	6	14	39
Nashville.....	45	16.8	43.3	5	7	77
White.....	31			2	3	41
Colored.....	14	(⁹)	(⁹)	3	4	190
New Bedford.....	26			0	6	0
New Haven.....	44	12.2	13.3	4	2	78
New Orleans.....	173	21.0	32.3	22	15	127
White.....	108			8	5	71
Colored.....	65	(⁹)	(⁹)	14	10	235

See footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended January 11, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929.—Continued

City	Week ended Jan. 11, 1930		Annual death rate per 1,000, corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Jan. 11, 1930
	Total deaths	Death rate		Week ended Jan 11, 1930	Corresponding week, 1929	
New York.....	1,575	13.6	18.5	141	194	59
Bronx Borough.....	208	11.4	15.2	16	32	38
Brooklyn Borough.....	537	12.1	16.9	56	63	60
Manhattan Borough.....	625	18.6	24.9	52	67	85
Queens Borough.....	158	9.6	13.7	17	30	49
Richmond Borough.....	47	16.3	16.3	0	2	0
Newark, N. J.....	127	14.0	21.6	10	21	52
Oakland.....	63	12.0	12.9	8	2	96
Oklahoma City.....	30			1	6	20
Omaha.....	61	14.3	12.9	2	7	23
Paterson.....	37	13.3	24.1	8	1	139
Philadelphia.....	468	11.8	20.8	41	66	61
Pittsburgh.....	200	15.5	29.9	21	33	77
Portland, Oreg.....	85			3	1	37
Providence.....	77	14.0	12.9	8	8	73
Richmond.....	56	15.0	29.8	10	1	148
White.....	29			4	0	90
Colored.....	27	(¹)	(¹)	6	1	262
Rochester.....	62	9.9	17.5	2	11	18
St. Louis.....	211	13.0	22.7	12	24	39
St. Paul.....	55			4	4	41
Salt Lake City ¹	36	13.6	13.6	2	0	31
San Antonio.....	75	17.9	20.8	11	12	
San Diego.....	47			1	2	21
San Francisco.....	193	17.2	16.7	2	6	14
Schenectady.....	23	12.9	21.2	0	3	0
Seattle.....	62	8.4	15.6	3	4	30
Somerville.....	15	7.6	9.6	2	4	65
Spokane.....	26	12.4	25.8	1	8	26
Springfield, Mass.....	32	11.1	18.1	2	6	32
Syracuse.....	56	14.7	22.5	6	2	74
Tacoma.....	24	11.3	14.2	2	2	51
Toledo.....	82	13.7	21.0	5	8	46
Trenton.....	49	18.4	25.9	4	7	74
Utica.....	20	10.0	25.0	1	2	28
Washington, D. C.....	143	13.5	22.7	10	20	58
White.....	93			6	8	52
Colored.....	50	(¹)	(¹)	4	12	71
Waterbury.....	20			3	6	77
Wilmington, Del.....	34	13.8	14.2	4	5	90
Worcester.....	45	11.9	13.5	5	4	65
Yonkers.....	20	8.6	18.5	2	1	48
Youngstown.....	30	9.0	23.0	3	7	47

¹ Annual rate per 1,000 population.

² Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.

³ Data for 73 cities.

⁴ Deaths for week ended Friday.

⁵ In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 28; Richmond, 32; and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended January 11, 1930, and January 12, 1929

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended January 11, 1930, and January 12, 1929

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Jan. 11, 1930	Week ended Jan. 12, 1929	Week ended Jan. 11, 1930	Week ended Jan. 12, 1929	Week ended Jan. 11, 1930	Week ended Jan. 12, 1929	Week ended Jan. 11, 1930	Week ended Jan. 12, 1929
New England States:								
Maine.....	4	1	8	722	216	0	0	0
New Hampshire.....	3		8	75	27	38	0	0
Vermont.....				373	22	9	0	0
Massachusetts.....	121	117	10	1,976	279	792	1	3
Rhode Island.....	16	6	6	208		72	0	0
Connecticut.....	24	30	12	2,079	62	390	1	2
Middle Atlantic States:								
New York.....	164	283	134	2,649	367	946	16	37
New Jersey.....	114	164	26	2,474	219	189	9	9
Pennsylvania.....	169	162			510	913	10	0
East North Central States:								
Ohio.....	74	64	34	4,778	494	655	9	15
Indiana.....	38	53		966	96	134	20	0
Illinois.....	181	161	20	1,240	367	339	14	7
Michigan.....	101	94	7	3,394	269	94	18	18
Wisconsin.....	20	20	102	3,830	566	191	0	10
West North Central States:								
Minnesota.....	34	17		252	186	121	4	3
Iowa.....	15	16	1	103	253		1	6
Missouri.....	41	72	46	3,123	84	112	8	7
North Dakota.....	8	4		546	17	10	3	3
South Dakota.....	1			284	41	31	3	4
Nebraska.....	12	17	10	383	313	13	4	0
Kansas.....	24	21	5	1,697	130	18	3	1
South Atlantic States:								
Delaware.....	10	3		155		41	0	0
Maryland.....	25	31	54	5,816	15	46	1	2
District of Columbia.....	8	8		567	1	2	0	0
West Virginia.....	13	21	15	13,711	103	141	3	3
North Carolina.....	83	56	33		15	23	1	0
South Carolina.....	31	20	1,133	6,421		5	6	0
Georgia.....	20	8	158	7,739	93	59	1	1
Florida.....	8	6	6	820	9	2	0	0
East South Central States:								
Kentucky.....	8	7		6,170	69		2	0
Tennessee.....	21	26	147	12,599	88	28	40	1
Alabama.....	25	34	204	19,987	24	60	2	0
Mississippi.....	20	9		5,030			7	2
West South Central States:								
Arkansas.....	9	8	120	5,289	2	12	5	12
Louisiana.....	39	20	35	6,163	49	33	6	4
Oklahoma.....	43	41	164	9,296	45	10	2	10
Texas.....	102	44	87	6,095	6	89	9	1

1 New York City only.

2 Week ended Friday.

3 Figures for 1930 are exclusive of Oklahoma City and Tulsa.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended January 11, 1930, and January 12, 1929—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Jan 11, 1930	Week ended Jan 12, 1929	Week ended Jan 11, 1930	Week ended Jan 12, 1929	Week ended Jan 11, 1930	Week ended Jan 12, 1929	Week ended Jan 11, 1930	Week ended Jan 12, 1929
Mountain States:								
Montana.....	1	4	-----	333	29	72	3	4
Idaho.....	-----	1	-----	9	21	5	1	0
Wyoming.....	1	4	-----	311	3	3	1	2
Colorado.....	10	6	2	117	69	13	1	6
New Mexico.....	8	8	-----	125	9	-----	0	2
Arizona.....	16	10	30	10	-----	1	25	7
Utah ¹	1	7	4	14	88	-----	6	5
Pacific States:								
Washington.....	9	12	4	151	47	83	3	9
Oregon.....	10	21	46	741	15	49	0	1
California.....	60	61	76	976	442	26	11	19
Division and State	Polioomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Jan 11, 1930	Week ended Jan 12, 1929	Week ended Jan 11, 1930	Week ended Jan 12, 1929	Week ended Jan 11, 1930	Week ended Jan 12, 1929	Week ended Jan 11, 1930	Week ended Jan 12, 1929
New England States:								
Maine.....	0	2	45	22	0	1	1	0
New Hampshire.....	0	0	16	7	0	0	0	0
Vermont.....	0	0	12	13	1	1	0	0
Massachusetts.....	1	1	349	262	0	0	4	2
Rhode Island.....	0	0	35	19	0	0	0	0
Connecticut.....	0	0	129	50	0	0	0	0
Middle Atlantic States:								
New York.....	1	0	492	505	13	1	11	15
New Jersey.....	0	2	232	131	0	0	3	2
Pennsylvania.....	1	0	466	261	0	0	17	5
East North Central States:								
Ohio.....	0	0	279	251	159	17	6	4
Indiana.....	0	0	177	116	205	52	4	0
Illinois.....	0	2	567	299	158	100	10	4
Michigan.....	0	2	321	277	70	26	0	1
Wisconsin.....	1	0	138	123	43	36	2	3
West North Central States:								
Minnesota.....	0	0	101	114	10	2	2	0
Iowa.....	0	1	73	114	121	11	1	0
Missouri.....	0	0	41	84	37	44	5	1
North Dakota.....	0	0	49	24	34	5	0	1
South Dakota.....	0	0	16	33	30	28	0	2
Nebraska.....	1	0	60	60	140	26	0	1
Kansas.....	0	0	118	106	52	12	2	2
South Atlantic States:								
Delaware.....	0	0	22	2	0	0	0	1
Maryland ²	2	0	102	62	0	1	5	3
District of Columbia.....	0	0	19	15	0	0	0	0
West Virginia.....	1	0	52	40	23	16	10	6
North Carolina.....	0	0	96	53	33	16	0	0
South Carolina.....	0	2	27	13	0	0	9	5
Georgia.....	0	0	14	25	0	0	6	3
Florida.....	0	0	14	10	0	0	1	2
East South Central States:								
Kentucky.....	0	0	69	0	23	17	0	2
Tennessee.....	1	0	45	29	6	0	7	3
Alabama.....	0	0	28	24	45	18	1	1
Mississippi.....	0	0	26	11	1	1	2	1
West South Central States:								
Arkansas.....	0	0	21	27	12	1	7	12
Louisiana.....	0	0	24	34	12	11	14	6
Oklahoma ²	0	1	47	25	34	64	16	8
Texas.....	0	0	73	56	97	12	4	5
Mountain States:								
Montana.....	0	0	46	52	9	13	1	2
Idaho.....	0	0	9	4	11	28	0	1
Wyoming.....	0	0	1	32	12	5	0	0
Colorado.....	0	0	36	5	25	5	0	1
New Mexico.....	2	0	7	6	2	0	1	1
Arizona.....	0	0	13	2	34	8	2	0
Utah ¹	0	0	17	12	0	10	0	0
Pacific States:								
Washington.....	3	0	75	33	108	56	0	0
Oregon.....	0	1	39	23	15	56	3	0
California.....	8	2	299	284	77	87	7	1

¹ Week ended Friday.² Figures for 1930 are exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Menin- gococ- cus menin- gitis	Diph- theria	Influ- enza	Ma- laria	Meas- les	Pellag- ra	Polio- mye- litis	Scarlet fever	Small- pox	Ty- phoid fever
<i>November, 1929</i>										
Kansas.....	14	166	11		225		1	381	164	20
South Carolina.....	464		3, 127	2, 483	28	390	7	160	4	88
<i>December, 1929</i>										
Arizona.....	26	51	69		8	1	0	30	28	11
Connecticut.....	17	106	25		45		2	321	0	8
District of Columbia.....		47	3		3		0	75	0	2
Indiana.....	56	123	129		92		3	521	653	8
Nebraska.....	9	88	15		568		3	219	195	1
North Dakota.....	12	22	7		132		1	145	53	2

[illegible]

December, 1929—Continued

Tularaemia:	
Arizona.....	1
District of Columbia.....	7
Indiana.....	7
Undulant fever:	
Arizona.....	2
Nebraska.....	3
Vincent's angina:	
North Dakota.....	18

December, 1929—Continued

Whooping cough:	
Arizona.....	30
Connecticut.....	189
District of Columbia.....	19
Indiana.....	74
Nebraska.....	73
North Dakota.....	17

**Number of Cases of Certain Communicable Diseases Reported for the Month
of October, 1929, by State Health Officers**

State	Chick- en pox	Diph- theria	Measles	Mumps	Scarlet fever	Small- pox	Tuber- culosis	Ty- phoid and paraty- phoid fever	Whoop- ing cough
Maine.....	133	10	77	66	125	0	34	13	62
New Hampshire.....		8			68	0		3	
Vermont.....	140	10	3	5	20	43	20	0	114
Massachusetts.....	501	436	204	222	631	0	486	37	462
Rhode Island.....	9	53	4	3	48	0	45	8	16
Connecticut.....	241	99	11	67	118	0	117	20	140
New York.....	924	553	547	526	576	72	1,030	167	1,084
New Jersey.....	449	470	64		287	0	465	39	447
Pennsylvania.....	1,682	820	997	464	987	10	670	226	1,311
Ohio.....	1,150	407	576	162	831	187	691	155	546
Indiana.....	124	133	36	15	240	86	134	32	65
Illinois.....	1,071	823	387	202	1,262	339	920	148	807
Michigan.....	776	463	454	181	702	159	766	49	350
Wisconsin.....	1,013	106	825	146	325	63	189	53	637
Minnesota.....	404	148	118		350	15	247	25	80
Iowa.....		53			221	100		16	
Missouri.....	169	242	74	14	282	48	197	58	163
North Dakota.....	90	29	27	19	62	30	21	11	16
South Dakota.....	42	21	7	17	47	145	4	22	22
Nebraska.....	118	130	92	38	89	32	17	6	95
Kansas.....	231	182	200	120	341	51	126	20	123
Delaware.....	52	11	3		16	0	19	4	24
Maryland.....	126	108	25	28	224	0	255	101	222
District of Columbia.....	25	52	8		36	0	81	6	5
Virginia.....	203	589	111		427	168	100	82	733
West Virginia.....	68	129	70		225	19	109	113	78
North Carolina.....	156	1,192	10		602	28		84	560
South Carolina.....	51	525	13	42	128	0	146	122	333
Georgia.....	12	143	10	19	189	0	70	87	90
Florida.....	5	65	7	32	33	1	27	10	18
Kentucky ¹									
Tennessee.....	24	280	34	6	288	11	239	137	66
Alabama.....	14	300	34	6	257	6	299	66	68
Mississippi.....	244	523	74	100	161	1	201	93	574
Arkansas.....	28	110	5	33	114	4	121	116	31
Louisiana.....	7	171	6		97	0	158	60	7
Oklahoma ²	16	306	95		160	48	45	130	30
Texas ³									
Montana.....	103	10	512	180	95	38	20	116	8
Idaho.....	63	11	142	109	46	25	16	1	23
Wyoming.....	13	3	1	2	13	4	12	6	6
Colorado.....	179	31	15	19	68	33	125	21	60
New Mexico ³									
Arizona.....	15	69	6	98	30	7	77	19	59
Utah ³									
Nevada.....							4		
Washington.....	488	91	132	230	175	119	149	60	113
Oregon.....	65	41	49	57	62	36	50	17	19
California.....	800	304	248	1,132	768	121	956	70	491

¹ Pulmonary.² Reports received weekly.³ Exclusive of Oklahoma City and Tulsa.

**Case Rates per 1,000 Population (Annual Basis) for the Month of
October, 1929**

State	Chick- en pox	Diph- theria	Measles	Mumps	Scarlet fever	Small- pox	Tuber- culosis	Ty- phoid and paraty- phoid fever	Whoop- ing cough
Maine.....	1.96	0.15	1.14	0.98	1.85	0	0.50	0.19	0.92
New Hampshire.....		.21			1.75	0		0.08	
Vermont.....	4.68	.33	.10	.17	.67	1.44	.67	0	3.81
Massachusetts.....	1.36	1.18	.80	.60	1.71	0	1.32	.10	1.25
Rhode Island.....	.15	.86	.06	.05	.78	0	.73	.13	.26
Connecticut.....	1.67	.69	.08	.46	.82	0	.81	.14	.97
New York.....	.93	.56	.55	.53	.58	.07	1.95	.17	1.09
New Jersey.....	1.36	1.42	.19		.87	0	1.41	.12	1.85
Pennsylvania.....	1.98	.97	1.16	.55	1.16	.01	.79	.27	1.55
Ohio.....	1.95	.69	.98	.27	1.41	.32	1.17	.26	.93
Indiana.....	.46	.49	.13	.06	.88	.32	.49	.12	.20
Illinois.....	1.68	1.29	.61	.32	1.98	.53	1.45	.23	1.27
Michigan.....	1.95	1.16	1.14	.45	1.76	.40	1.92	.12	.88
Wisconsin.....	3.99	.42	3.25	.58	1.28	.25	.74	.21	2.51
Minnesota.....	1.72	.63	.50		1.49	.06	1.05	.11	.34
Iowa.....		.26			1.07	.48		.08	
Missouri.....	.56	.81	.25	.05	.94	.16	.66	.19	.54
North Dakota.....	1.65	.53	.50	.35	1.14	.55	.39	.20	.29
South Dakota.....	.69	.35	.12	.28	.78	2.40	.07	.36	.36
Nebraska.....	.98	1.08	.76	.32	.74	.27	.14	.05	.79
Kansas.....	1.48	1.16	1.28	.77	2.18	.83	.81	.13	.79
Delaware.....	2.50	.53	.14		.77	0	1.43	.19	1.15
Maryland.....	.91	.78	.18	.20	1.61	0	1.84	.73	1.60
District of Columbia.....	.52	1.09	.17		.75	0	1.69	.13	.10
Virginia.....	.92	2.66	.50		1.93	.76	.72	.37	3.31
West Virginia.....	.40	.87	.47		1.51	.13	.73	.76	.52
North Carolina.....	.62	4.71	.04		2.38	.11		.33	2.21
South Carolina.....	.32	3.28	.08	.26	.80	0	.91	.76	2.06
Georgia.....	.04	.52	.04	.07	.69	0	.25	.32	.33
Florida.....	.04	.52	.06	.26	.27	.01	.22	.08	.15
Kentucky ¹									
Tennessee.....	.11	1.31	.16	.03	1.35	.05	1.12	.64	.32
Alabama.....	.06	1.36	.15	.03	1.17	.03	1.86	.30	.31
Mississippi.....	1.00	3.44	.49	.66	1.06	.01	1.32	.61	3.77
Arkansas.....	.17	.66	.03	.20	.68	.02	1.13	.70	.19
Louisiana.....	.04	1.02	.04		.58	0	.95	.36	.04
Oklahoma ².....	.09	1.66	.51		.87	.26	.24	.70	.16
Texas ³									
Montana.....	2.21	.21	10.96	3.86	2.04	.82	.43	2.49	.17
Idaho.....	1.33	.23	3.00	2.30	.97	.53	.34	.02	.49
Wyoming.....	.60	.14	.05	.09	.60	.19	1.09	.28	.28
Colorado.....	1.91	.33	.16	.20	.72	.35	1.33	.22	.64
New Mexico ³									
Arizona.....	.36	1.66	.14	2.36	.72	.17	1.85	.46	1.42
Utah ¹.....							.61		
Nevada.....									
Washington.....	3.56	.66	.96	1.68	1.28	.87	1.09	.44	.83
Oregon.....	.84	.53	.63	.73	.80	.46	.64	.22	.24
California.....	2.01	.76	.62	2.85	1.93	.30	2.41	.18	1.24

¹ Pulmonary.² Reports received weekly.³ Exclusive of Oklahoma City and Tulsa.

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 96 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 31,910,000. The estimated population of the 89 cities reporting deaths is more than 30,320,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended January 4, 1930, and January 5, 1929

	1930	1929	Estimated expectancy
<i>Cases reported</i>			
Diphtheria:			
45 States.....	1,913	1,717	-----
96 cities.....	717	896	1,105
Measles:			
42 States.....	3,898	4,598	-----
96 cities.....	798	1,162	-----
Meningococcus meningitis:			
45 States.....	192	151	-----
96 cities.....	87	87	-----
Polioomyelitis:			
40 States.....	20	15	-----
Scarlet fever:			
45 States.....	3,928	3,485	-----
96 cities.....	1,529	1,176	1,378
Smallpox:			
45 States.....	1,266	623	-----
96 cities.....	122	21	50
Typhoid fever:			
45 States.....	133	114	-----
96 cities.....	15	22	105
<i>Deaths reported</i>			
Influenza and pneumonia:			
89 cities.....	1,087	3,533	-----
Smallpox:			
89 cities.....	0	0	-----

City reports for week ended January 4, 1930

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1921 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Population, July 1, 1928, estimated	Chick- en pox, cases re- ported	Diphtheria		Influenza		Meas- les, cases re- ported	Mumps, cases re- ported	Pneu- monia, deaths re- ported
			Cases, esti- mated expect- ancy	Cases re- ported	Cases re- ported	Deaths re- ported			
NEW ENGLAND									
Maine:									
Portland.....	78,600	30	2	0		0	0	8	3
New Hampshire:									
Concord.....	(1)	0	0	0		0	2	0	0
Manchester.....	85,700	0	2	0	1	1	0	0	1
Vermont:									
Barre.....	(1)	0	0	0		0	1	0	0
Massachusetts:									
Boston.....	799,200	81	41	36	3	1	30	53	33
Fall River.....	134,300	17	5	3		0	1	0	5
Springfield.....	149,800	13	5	2		1	0	4	4
Worcester.....	197,600	15	5	2		0	19	0	3
Rhode Island:									
Pawtucket.....	73,100	19	1	3		0	1	0	1
Providence.....	280,800	3	10	13		1	1	0	7
Connecticut:									
Bridgeport.....	(1)	1	7	1	1	0	1	0	4
Hartford.....	172,300	6	8	1	2	0	0	1	7
New Haven.....	187,900	32	2	0		0	0	8	7

¹ No estimate of population made.

City reports for week ended January 4, 1930—Continued

Division, State, and city	Population, July 1, 1928, estimated	Chick- en pox, cases re- ported	Diphtheria		Influenza		Meas- les, cases re- ported	Mumps, cases re- ported	Pneu- monia, deaths re- ported
			Cases, esti- mated expect- ancy	Cases re- ported	Cases re- ported	Deaths re- ported			
MIDDLE ATLANTIC									
New York:									
Buffalo.....	555,800	27	18	11	-----	0	4	3	19
New York.....	6,017,500	187	217	98	20	14	37	0	246
Rochester.....	328,200	18	10	1	-----	0	4	2	3
Syracuse.....	199,300	18	6	0	-----	0	0	28	7
New Jersey:									
Camden.....	135,400	0	7	3	-----	0	0	1	7
Newark.....	473,600	63	21	24	16	0	51	12	18
Trenton.....	139,000	5	4	1	-----	0	8	0	1
Pennsylvania:									
Philadelphia.....	2,064,200	102	82	29	8	6	23	24	58
Pittsburgh.....	673,800	46	23	12	3	0	33	3	14
Reading.....	115,400	22	4	1	-----	1	0	3	5
EAST NORTH CENTRAL									
Ohio:									
Cincinnati.....	413,700	20	14	9	-----	1	1	0	9
Cleveland.....	1,010,300	133	41	18	9	2	6	3	30
Columbus.....	299,000	12	7	0	4	3	4	3	4
Toledo.....	313,200	91	12	3	1	1	405	3	8
Indiana:									
Fort Wayne.....	105,300	7	5	5	-----	1	1	0	1
Indianapolis.....	382,100	48	11	5	-----	0	17	15	15
South Bend.....	86,100	1	1	-----	-----	-----	-----	-----	-----
Terre Haute.....	73,500	5	2	0	-----	0	0	0	3
Illinois:									
Chicago.....	3,157,400	152	111	162	19	11	20	23	72
Springfield.....	67,300	14	2	1	1	1	1	0	1
Michigan:									
Detroit.....	1,378,900	69	65	40	-----	2	118	25	27
Flint.....	148,800	21	5	0	1	1	1	0	2
Grand Rapids.....	164,200	4	2	0	-----	0	1	1	1
Wisconsin:									
Kenosha.....	56,500	2	2	0	-----	0	1	0	1
Madison.....	50,500	4	0	1	-----	0	112	1	0
Milwaukee.....	544,200	131	22	5	1	1	2	16	11
Racine.....	74,400	3	3	-----	-----	-----	-----	-----	-----
Superior.....	(¹)	0	1	0	-----	0	12	2	1
WEST NORTH CENTRAL									
Minnesota:									
Duluth.....	116,800	2	2	0	-----	0	32	0	9
Minneapolis.....	455,900	194	22	8	-----	4	26	4	15
St. Paul.....	(¹)	10	13	0	-----	3	8	4	9
Iowa:									
Davenport.....	(¹)	3	0	0	-----	-----	0	1	-----
Des Moines.....	151,900	1	4	0	-----	-----	15	1	-----
Sioux City.....	80,000	8	3	1	-----	-----	0	0	-----
Waterloo.....	37,100	10	0	2	-----	-----	65	0	-----
Missouri:									
Kansas City.....	391,000	26	8	2	-----	0	2	0	17
St. Joseph.....	78,500	3	2	0	-----	0	0	0	5
St. Louis.....	848,100	11	48	35	-----	-----	1	19	-----
North Dakota:									
Fargo.....	(¹)	3	0	0	-----	0	0	1	2
Grand Forks.....	(¹)	0	0	0	-----	-----	0	0	-----
South Dakota:									
Aberdeen.....	(¹)	4	0	0	-----	-----	0	0	-----
Sioux Falls.....	(¹)	0	1	0	-----	-----	4	0	-----
Nebraska:									
Omaha.....	222,800	14	5	11	-----	0	9	0	6
Kansas:									
Topeka.....	62,800	48	2	1	1	2	3	8	1
Wichita.....	99,300	14	4	0	-----	0	0	0	2

¹No estimate of population made.

City reports for week ended January 4, 1930—Continued

Division, State, and city	Population, July 1, 1928, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
SOUTH ATLANTIC									
Delaware:									
Wilmington.....	128,500	3	2	3	-----	0	0	0	3
Maryland:									
Baltimore.....	830,400	69	33	13	26	2	2	3	44
Cumberland.....	(1)	0	1	0	1	1	0	0	1
Frederick.....	(1)	0	0	1	-----	0	0	0	0
District of Columbia:									
Washington.....	552,000	15	20	11	2	2	3	0	18
Virginia:									
Lynchburg.....	38,600	13	2	1	-----	0	61	14	2
Norfolk.....	184,200	0	2	1	-----	0	1	8	8
Richmond.....	194,400	0	7	1	-----	2	0	1	8
Roanoke.....	64,600	0	2	3	-----	0	1	2	1
West Virginia:									
Charleston.....	55,200	6	1	1	1	0	2	0	1
Wheeling.....	(1)	1	2	1	-----	0	1	0	5
North Carolina:									
Raleigh.....	(1)	14	1	0	-----	0	0	0	1
Wilmington.....	39,100	0	1	3	-----	0	1	0	1
Winston-Salem.....	80,000	12	1	3	6	0	0	6	5
South Carolina:									
Charleston.....	75,900	2	1	0	57	0	0	1	4
Columbia.....	50,600	7	0	0	-----	0	0	0	2
Georgia:									
Atlanta.....	255,100	5	5	3	38	2	0	10	15
Brunswick.....	(1)	0	0	0	-----	0	0	0	1
Savannah.....	99,900	7	1	3	7	0	0	0	6
Florida:									
Miami.....	156,700	1	4	2	-----	0	2	2	2
St. Petersburg.....	53,300	-----	0	-----	-----	0	-----	-----	0
Tampa.....	113,400	1	2	0	-----	0	0	1	2
EAST SOUTH CENTRAL									
Kentucky:									
Covington.....	59,000	0	1	4	-----	0	0	0	1
Tennessee:									
Memphis.....	190,200	5	6	0	-----	2	0	2	9
Nashville.....	139,600	1	1	1	-----	0	0	0	9
Alabama:									
Birmingham.....	222,400	5	4	10	9	2	1	0	12
Mobile.....	69,600	0	1	2	4	0	0	0	4
Montgomery.....	63,100	7	1	0	3	-----	0	0	-----
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith.....	(1)	0	1	1	-----	-----	0	0	-----
Little Rock.....	79,200	0	0	3	-----	1	0	0	2
Louisiana:									
New Orleans.....	429,400	0	13	11	9	7	19	0	27
Shreveport.....	81,300	2	2	2	-----	0	1	3	9
Oklahoma:									
Oklahoma City.....	(1)	7	2	3	1	1	0	0	3
Tulsa.....	170,500	19	3	0	-----	-----	12	0	-----
Texas:									
Dallas.....	217,800	6	10	21	1	3	5	0	14
Fort Worth.....	170,600	9	4	7	-----	0	1	1	2
Galveston.....	50,600	0	2	0	-----	0	0	0	5
Houston.....	(1)	1	7	9	-----	1	0	1	16
San Antonio.....	218,100	0	3	5	-----	8	1	0	16
MOUNTAIN									
Montana:									
Billings.....	(1)	0	1	1	-----	0	0	7	0
Great Falls.....	(1)	3	0	0	-----	0	0	28	0
Helena.....	(1)	0	0	1	-----	0	1	46	1
Missoula.....	(1)	1	1	0	-----	0	0	0	1
Idaho:									
Boise.....	(1)	6	0	0	-----	0	2	0	0
Colorado:									
Denver.....	294,200	49	10	3	-----	2	8	8	15
Pueblo.....	44,200	6	2	0	-----	0	0	13	1

1 No estimate of population made.

City reports for week ended January 4, 1930—Continued

Division, State, and city	Population, July 1, 1928, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
MOUNTAIN—continued									
New Mexico:									
Albuquerque.....	(1)	0	1	1	-----	0	0	0	1
Arizona:									
Phoenix.....	(1)	2	0	1	-----	1	1	3	8
Utah:									
Salt Lake City.....	138,000	36	4	1	-----	0	11	9	8
Nevada:									
Reno.....	(1)	0	0	0	-----	0	1	1	0
PACIFIC									
Washington:									
Seattle.....	383,200	54	5	2	-----	-----	1	32	-----
Spokane.....	109,100	21	2	3	-----	-----	0	0	-----
Tacoma.....	110,500	0	3	1	-----	0	1	0	0
Oregon:									
Portland.....	(1)	27	12	9	-----	5	0	4	11
Salem.....	(1)	3	0	1	-----	-----	0	1	5
California:									
Los Angeles.....	(1)	45	43	33	-----	30	1	8	16
Sacramento.....	75,700	6	3	3	-----	2	1	2	24
San Francisco.....	585,300	24	19	7	-----	5	2	117	18

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
NEW ENGLAND											
Maine:											
Portland.....	2	6	0	0	0	0	1	0	0	0	23
New Hampshire:											
Concord.....	1	0	0	0	0	0	0	0	0	0	6
Manchester.....	2	0	0	0	0	0	0	0	0	0	12
Vermont:											
Barre.....	1	0	0	0	0	1	0	0	0	1	4
Massachusetts:											
Boston.....	75	85	0	0	0	10	1	1	0	57	252
Fall River.....	3	1	0	0	0	1	0	0	0	10	28
Springfield.....	10	12	0	0	0	3	0	0	0	9	49
Worcester.....	13	10	0	0	0	4	0	0	0	9	65
Rhode Island:											
Pawtucket.....	1	4	0	0	0	1	0	0	0	0	21
Providence.....	9	16	0	0	0	2	0	0	0	7	83
Connecticut:											
Bridgeport.....	10	15	0	0	0	0	0	0	0	1	42
Hartford.....	7	10	0	0	0	3	0	0	0	1	62
New Haven.....	7	10	0	0	0	0	0	0	0	4	45
MIDDLE ATLANTIC											
New York:											
Buffalo.....	25	38	0	0	0	11	1	0	0	13	178
New York.....	233	161	0	0	0	94	9	0	0	52	1,040
Rochester.....	13	3	0	0	0	3	0	0	0	4	83
Syracuse.....	13	20	0	0	0	1	0	0	0	34	51
New Jersey:											
Camden.....	7	2	0	0	0	2	0	0	0	1	31
Newark.....	27	19	0	0	0	11	0	1	0	25	137
Trenton.....	4	12	0	0	0	3	0	0	0	2	32
Pennsylvania:											
Philadelphia.....	95	100	0	0	0	28	3	1	1	23	537
Pittsburgh.....	39	33	0	0	0	6	1	0	0	16	106
Reading.....	4	2	0	0	0	1	0	0	0	17	81

¹ No estimate of population made.

City reports for week ended January 4, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culosis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
EAST NORTH CEN- TRAL											
Ohio:											
Cincinnati.....	19	27	0	1	0	15	1	1	1	5	166
Cleveland.....	43	36	1	0	0	18	1	0	0	43	224
Columbus.....	11	7	0	4	0	5	0	0	0	2	89
Toledo.....	15	8	1	6	0	3	0	0	0	0	69
Indiana:											
Fort Wayne.....	5	3	1	11	0	1	0	0	0	0	-----
Indianapolis.....	11	7	8	4	0	5	0	0	0	0	110
South Bend.....	3		0				0				-----
Terre Haute.....	3	2	1	0	0	3	0	0	0	0	34
Illinois:											
Chicago.....	129	269	0	0	0	52	3	2	1	83	710
Springfield.....	3	0	0	1	0	0	0	0	0	2	26
Michigan:											
Detroit.....	101	141	2	1	0	14	1	0	0	66	288
Flint.....	13	9	1	3	0	0	0	0	0	4	24
Grand Rapids.....	13	11	1	0	0	2	1	0	0	6	41
Wisconsin:											
Kenosha.....	2	5	0	0	0	0	0	0	0	3	4
Madison.....	3	2	0	0	0	0	0	0	0	18	8
Milwaukee.....	35	17	0	0	0	6	0	0	0	23	134
Racine.....	6		0				0				-----
Superior.....	3	7	0	0	0	1	0	0	0	1	13
WEST NORTH CEN- TRAL											
Minnesota:											
Duluth.....	11	5	0	1	0	2	0	0	0	6	25
Minneapolis.....	57	14	3	0	0	5	0	0	0	0	122
St. Paul.....	31	9	1	0	0	6	0	0	0	8	78
Iowa:											
Davenport.....	2	0	1	6			0	0		0	-----
Des Moines.....	10	8	2	12			0	0		0	27
Sioux City.....	1	0	1	2			0	0		0	-----
Waterloo.....	2	0	0	32			0	0		3	-----
Missouri:											
Kansas City.....	15	36	1	0	0	4	0	0	0	4	94
St. Joseph.....	3	1	0	1	0	0	0	0	0	0	31
St. Louis.....	41	43	1	1	0	13	1	0	0	3	264
North Dakota:											
Fargo.....	2	2	0	3	0	1	0	0	0	0	7
Grand Forks.....	1	0	0	0			0	0		0	-----
South Dakota:											
Aberdeen.....	0	0	0	0			0	0		1	-----
Sioux Falls.....	2	0	0	16			0	0		0	7
Nebraska:											
Omaha.....	5	8	2	2	0	4	0	0	0	1	64
Kansas:											
Topeka.....	3	4	0	0	0	1	0	0	0	0	24
Wichita.....	5	9	0	0	0	2	0	0	0	0	15
SOUTH ATLANTIC											
Delaware:											
Wilmington.....	6	3	0	0	0	0	0	0	0	1	22
Maryland:											
Baltimore.....	32	28	0	0	0	18	2	2	0	17	242
Cumberland.....	1	0	0	0	0	0	0	0	0	0	10
Frederick.....	0	3	0	0	0	0	0	0	0	0	9
District of Colum- bia:											
Washington.....	24	16	0	0	0	8	1	0	0	7	162
Virginia:											
Lynchburg.....	1	0	0	0	0	2	0	0	0	18	22
Norfolk.....	2	9	0	0	0	1	0	0	0	0	-----
Richmond.....	6	13	0	0	0	0	1	0	0	2	62
Rosnoke.....	3	2	0	0	0	1	0	0	0	0	21
West Virginia:											
Charleston.....	1	0	0	0	0	0	0	0	0	3	18
Wheeling.....	2	0	0	0	0	2	0	0	0	5	24
North Carolina:											
Raleigh.....	1	4	0	0	0	1	0	0	0	2	9
Wilmington.....	0	3	0	0	0	0	0	0	0	0	9
Winston-Salem.....	3	4	1	0	0	1	0	0	0	3	20

City reports for week ended January 4, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culosis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
SOUTH ATLANTIC— continued											
South Carolina:											
Charleston.....	0	0	0	0	0	0	1	0	0	0	36
Columbia.....	1	1	0	1	0	2	0	0	0	13	15
Georgia:											
Atlanta.....	4	11	1	0	0	5	0	0	0	0	94
Brunswick.....	0	0	0	0	0	0	0	0	0	0	4
Savannah.....	1	7	0	0	0	1	1	1	0	0	40
Florida:											
Miami.....	1	5	0	0	0	1	1	0	0	1	25
St. Petersburg.....	0	0	0	0	0	0	0	0	0	0	8
Tampa.....	1	6	0	0	0	3	0	0	0	1	25
EAST SOUTH CENTRAL											
Kentucky:											
Covington.....	2	0	0	0	0	1	0	0	0	2	29
Tennessee:											
Memphis.....	6	8	1	0	0	7	1	0	0	1	79
Nashville.....	3	1	0	0	0	7	1	0	0	0	63
Alabama:											
Birmingham.....	5	7	2	0	0	4	1	1	0	1	87
Mobile.....	0	0	0	0	0	0	0	0	0	0	24
Montgomery.....	0	3	0	0	0	0	0	0	0	0	0
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith.....	1	1	0	0	0	0	0	0	0	0	0
Little Rock.....	2	2	0	0	0	0	0	0	0	0	0
Louisiana:											
New Orleans.....	6	7	0	0	0	10	3	0	0	0	191
Shreveport.....	2	2	0	0	0	1	0	0	0	0	34
Oklahoma:											
Oklahoma City.....	3	11	1	1	0	1	0	0	0	0	24
Tulsa.....	2	6	0	1	0	0	0	0	0	7	0
Texas:											
Dallas.....	6	7	0	0	0	4	0	0	0	0	73
Fort Worth.....	2	8	1	0	0	2	0	0	0	0	38
Galveston.....	0	0	0	0	0	0	0	0	0	0	15
Houston.....	3	4	1	3	0	12	0	0	0	0	96
San Antonio.....	2	0	0	1	0	7	0	0	0	0	97
MOUNTAIN											
Montana:											
Billings.....	2	4	0	0	0	0	0	0	0	0	2
Great Falls.....	2	12	1	0	0	0	0	0	0	0	7
Helena.....	1	0	0	0	0	0	0	0	0	0	7
Missoula.....	0	0	0	5	0	0	0	0	0	0	10
Idaho:											
Boise.....	0	1	0	0	0	0	0	0	0	0	11
Colorado:											
Denver.....	11	19	1	0	0	2	0	0	0	9	70
Pueblo.....	2	0	0	0	0	0	0	0	0	0	7
New Mexico:											
Albuquerque.....	1	1	0	0	0	6	0	0	0	0	13
Arizona:											
Phoenix.....	0	2	0	2	0	4	0	0	0	0	22
Utah:											
Salt Lake City.....	4	8	3	1	0	1	0	1	0	19	31
Nevada:											
Reno.....	0	0	0	0	0	0	0	0	0	0	4
PACIFIC											
Washington:											
Seattle.....	9	12	2	3	0	1	0	0	0	11	0
Spokane.....	8	0	4	29	0	0	0	0	0	0	21
Tacoma.....	3	7	3	7	0	1	0	0	0	0	0
Oregon:											
Portland.....	7	3	11	3	0	0	1	0	0	3	77
Salem.....	0	1	0	0	0	0	0	0	0	0	0
California:											
Los Angeles.....	29	61	4	0	0	25	1	0	0	18	311
Sacramento.....	2	6	1	3	0	1	0	1	1	0	29
San Francisco.....	16	25	1	2	0	8	0	3	0	0	162

City reports for week ended January 4, 1930—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Fellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Massachusetts:									
Worcester.....	1	0	0	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
New York ¹	14	7	1	0	0	1	1	0	0
New Jersey:									
Newark.....	1	0	1	0	0	0	0	1	0
Pennsylvania:									
Philadelphia.....	4	1	0	0	0	0	0	0	0
Pittsburgh.....	2	2	0	0	0	0	0	0	0
EAST NORTH CENTRAL									
Ohio:									
Cincinnati.....	1	1		0	0	0	0	1	0
Cleveland.....	4	1	0	0	0	0	0	0	0
Indiana:									
Indianapolis.....	14	11	0	0	0	0	0	0	0
Illinois:									
Chicago.....	6	2	0	0	0	0	0	1	1
Michigan:									
Detroit.....	11	7	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
Minneapolis.....	1	0	0	0	0	0	0	0	0
Missouri:									
Kansas City.....	1	0	0	0	0	0	0	0	0
St. Louis.....	4	2	0	0	0	0	0	0	0
SOUTH ATLANTIC¹									
Delaware:									
Wilmington.....	1	0	0	0	0	0	0	1	0
Virginia:									
Richmond.....	0	0	0	0	0	0	0	0	1
North Carolina:									
Winston-Salem.....	0	0	0	0	1	1	0	0	0
Georgia:									
Atlanta.....	2	2	0	0	1	0	0	0	0
EAST SOUTH CENTRAL									
Kentucky:									
Covington.....	0	1	0	0	0	0	0	0	0
Tennessee:									
Memphis.....	5	4	0	0	0	1	0	0	0
Nashville.....	1	1	0	0	0	0	0	0	0
WEST SOUTH CENTRAL									
Louisiana:									
New Orleans.....	3	3	0	0	0	0	0	0	0
Shreveport.....	0	2	0	0	0	1	0	0	0
Oklahoma:									
Oklahoma City.....	2	0	0	1	0	0	0	0	0
Tulsa.....	1	0	0	0	0	0	0	0	0
Texas:									
Dallas.....	0	0	0	0	1	1	0	0	0
Fort Worth.....	0	0	0	0	0	2	0	0	0
Galveston.....	0	0	0	0	0	1	0	0	0
Houston.....	0	0	0	0	0	1	0	0	0
MOUNTAIN									
Utah:									
Salt Lake City.....	2	2	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle.....	1	0	0	0	0	0	0	0	0
Spokane.....	2	0	0	0	0	0	0	0	0
California:									
Los Angeles.....	5	2	0	1	0	0	0	0	1
San Francisco.....	1	1	1	1	0	0	0	0	0

¹ Typhus fever, 2 cases; 1 case at New York City, N. Y., and 1 case at Tampa, Fla.

The following table gives the rates per 100,000 population for 98 cities for the 5-week period ended January 4, 1930, compared with those for a like period ended January 5, 1929. The population figures used in computing the rates are approximate estimates, authoritative figures for many of the cities not being available. The 98 cities reporting cases have an estimated aggregate population of more than 32,000,000. The 91 cities reporting deaths have nearly 30,500,000 estimated population.

*Summary of weekly reports from cities, December 1, 1929, to January 4, 1930—
Annual rates per 100,000 population, compared with rates for the corresponding period of 1928-29¹*

DIPHTHERIA CASE RATES

	Week ended—									
	Dec. 7, 1929	Dec. 8, 1928	Dec. 14, 1929	Dec. 15, 1928	Dec. 21, 1929	Dec. 22, 1928	Dec. 28, 1929	Dec. 29, 1928	Jan. 4, 1930	Jan. 5, 1929
98 cities.....	147	166	134	159	129	146	² 120	133	³ 117	148
New England.....	113	209	118	216	170	159	² 125	170	136	163
Middle Atlantic.....	110	159	112	139	106	146	113	156	86	178
East North Central.....	191	190	170	208	167	166	160	133	³ 156	153
West North Central.....	121	149	148	149	110	130	67	119	114	161
South Atlantic.....	127	143	107	130	107	122	79	105	86	111
East South Central.....	224	140	186	98	122	133	109	105	112	88
West South Central.....	376	259	304	251	233	191	178	174	201	111
Mountain.....	157	35	61	18	61	71	35	18	52	70
Pacific.....	87	100	60	61	57	95	85	43	120	60

MEASLES CASE RATES

	98	148	113	183	110	170	² 92	161	³ 130	196
98 cities.....										
New England.....	81	736	86	837	93	800	² 98	676	125	964
Middle Atlantic.....	54	46	47	91	59	68	51	77	76	80
East North Central.....	93	187	133	194	94	251	97	206	³ 118	230
West North Central.....	215	194	202	272	210	225	146	201	377	198
South Atlantic.....	4	55	28	88	39	62	30	73	132	114
East South Central.....	14	14	14	0	0	28	0	0	7	14
West South Central.....	47	41	63	12	138	12	91	4	101	24
Mountain.....	165	186	104	257	139	204	78	106	197	383
Pacific.....	389	43	479	64	431	49	337	84	315	40

SCARLET FEVER CASE RATES

	253	201	276	203	250	184	² 217	183	³ 250	195
98 cities.....										
New England.....	278	237	378	251	312	241	² 314	308	377	296
Middle Atlantic.....	148	142	172	143	176	145	164	138	186	148
East North Central.....	409	259	438	290	354	233	311	220	³ 344	239
West North Central.....	231	264	271	252	235	241	179	262	248	258
South Atlantic.....	159	176	193	163	253	166	144	132	186	154
East South Central.....	143	259	88	168	48	154	75	182	125	197
West South Central.....	162	219	142	174	103	101	126	162	89	142
Mountain.....	362	80	322	62	583	27	322	27	378	713
Pacific.....	367	197	352	182	252	197	254	151	271	185

SMALLPOX CASE RATES

	19	4	23	8	23	8	² 18	4	³ 20	3
98 cities.....										
New England.....	0	2	2	0	0	2	² 0	2	0	0
Middle Atlantic.....	0	0	0	0	0	0	0	0	0	1
East North Central.....	26	10	29	16	31	4	20	3	³ 16	6
West North Central.....	63	2	56	0	60	6	58	10	80	2
South Atlantic.....	0	0	0	2	0	0	2	2	2	0
East South Central.....	0	28	0	7	7	0	7	7	0	7
West South Central.....	20	4	36	24	36	41	28	12	15	4
Mountain.....	78	0	78	44	52	44	44	35	52	35
Pacific.....	62	8	122	20	117	56	80	15	107	5

¹ The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1930, 1929, and 1928, respectively.

² Hartford, Conn., not included.

³ South Bend, Ind., and Racine, Wis., not included.

Summary of weekly reports from cities, December 1, 1929, to January 4, 1930—
Annual rates per 100,000 population, compared with rates for the corresponding
period of 1928-29¹

TYPHOID FEVER CASE RATES

	Week ended—									
	Dec. 7, 1929	Dec. 8, 1928	Dec. 14, 1929	Dec. 15, 1928	Dec. 21, 1929	Dec. 22, 1928	Dec. 28, 1929	Dec. 29, 1928	Jan. 4, 1930	Jan. 5, 1929
98 cities.....	5	8	6	5	5	4	4	5	2	4
New England.....	2	5	7	7	0	2	10	2	2	5
Middle Atlantic.....	4	7	6	4	4	4	3	4	1	2
East North Central.....	4	7	3	1	3	1	1	5	12	3
West North Central.....	2	4	6	4	8	2	2	6	0	0
South Atlantic.....	6	8	7	6	4	8	9	6	6	9
East South Central.....	48	14	14	21	0	7	34	7	7	0
West South Central.....	0	49	8	16	40	8	8	8	0	4
Mountain.....	26	0	9	9	17	9	0	9	9	9
Pacific.....	10	5	7	8	2	10	10	8	10	7

INFLUENZA DEATH RATES

91 cities.....	17	50	16	60	19	118	19	180	17	234
New England.....	11	9	7	9	9	14	10	14	7	48
Middle Atlantic.....	14	17	9	27	18	66	13	129	10	165
East North Central.....	9	18	15	44	14	124	13	201	15	228
West North Central.....	27	64	12	174	15	220	15	254	27	240
South Atlantic.....	26	54	19	101	13	134	26	281	18	243
East South Central.....	59	84	59	100	52	77	30	268	29	970
West South Central.....	49	54	81	96	69	212	97	379	79	596
Mountain.....	17	514	0	735	26	594	26	286	17	218
Pacific.....	13	293	20	317	30	212	20	182	13	134

PNEUMONIA DEATH RATES

91 cities.....	137	161	151	202	159	250	144	315	170	383
New England.....	75	80	136	108	158	159	96	159	168	201
Middle Atlantic.....	139	149	156	190	166	247	155	294	181	296
East North Central.....	126	135	115	171	117	256	116	382	113	466
West North Central.....	126	190	174	318	180	444	174	364	195	216
South Atlantic.....	131	170	191	251	184	228	152	344	221	360
East South Central.....	237	306	215	199	215	207	193	261	261	533
West South Central.....	248	179	239	182	343	254	243	408	329	670
Mountain.....	166	337	192	689	235	399	209	363	180	174
Pacific.....	144	293	111	222	144	169	108	169	118	149

¹ Hartford, Conn., not included.

² South Bend, Ind., and Racine, Wis., not included.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Week ended December 28, 1929.—The Department of Pensions and National Health reports cases of certain communicable diseases in Canada for the week ended December 28, 1929, as follows:

Province	Cerebro-spinal fever	Influenza	Lethargic encephalitis	Poliomyelitis	Small-pox	Typhoid fever
Prince Edward Island ¹						
Nova Scotia ¹						
New Brunswick ¹						
Quebec.....						4
Ontario.....	1	2	1	3	28	7
Manitoba.....					3	
Saskatchewan.....					10	1
Alberta.....	2				2	
British Columbia.....	3				2	1
Total.....	6	2	1	3	45	13

¹ No case of any disease included in the table was reported during the week.

Quebec Province—Communicable diseases—Week ended January 4, 1930.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended January 4, 1930, as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis.....	1	Mumps.....	15
Chicken pox.....	28	Scarlet fever.....	26
Diphtheria.....	30	Smallpox.....	2
German measles.....	1	Tuberculosis.....	11
Influenza.....	1	Typhoid fever.....	2
Measles.....	84	Whooping cough.....	22

CUBA

Provinces—Communicable diseases—Four weeks ended December 21, 1929.—During the four weeks ended December 21, 1929, cases of certain communicable diseases were reported in the Provinces of Cuba as follows:

Disease	Pinar del Rio	Habana	Matanzas	Santa Clara	Camaguey	Oriente	Total
Cancer.....	2	8		3			13
Chicken pox.....	1	12		1			14
Diphtheria.....	1	6		3	4		14
Malaria.....	6	24		4	17	20	80
Measles.....		12		23			35
Paratyphoid fever.....				8		4	12
Scarlet fever.....		13		5			18
Typhoid fever.....	13	54	2	26	4	19	118

NETHERLANDS

Smallpox (alastrim)—Week ended December 21, 1929.—During the week ended December 21, 1929, 1 case of smallpox (alastrim) was reported at Bodegraven, Netherlands.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

From medical officers of the Public Health Service, American consuls, International Office of Public Hygiene, Pan American Sanitary Bureau, health section of the League of Nations, and other sources. The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

CHOLERA

[C indicates cases; D, deaths; P, present]

Place	June 2-29, 1929	June 30-July 29, 1929	July 28-Aug. 24, 1929	Aug. 25-Sept. 21, 1929	Sept. 22-Oct. 19, 1929	Week ended—									
						November, 1929					December, 1929				
						Oct. 26, 1929	2	9	16	23	30	7	14	21	28
Ceylon: Colombo.....	1														
China:															
Amoy.....	1														
Canton.....	4	7	1												
Canton.....	10	6	5	1						1	1				
Canton.....	5	5	3	1											
Hankow.....					4			1							
Manchuria:															
Kwantung—Dairen.....			1												
Newchwang.....								P	P						
Nanking.....			1,305	984	35		P	P							
Shanghai.....		2	98	60	11										
Swatow.....	4	7	12	37	22	6	3	3		1	1				
Tientsin.....					P										
Chosen: Chemulpo.....	23,449	32,081	41,080	26,896	15,354	4,973	3,978								
India:	19,910	19,343	24,005	16,667	10,051	2,971	2,496								
Bassett.....	2		6		1										
Bombay.....	2		2												
Calcutta.....	354	375	170	135	190	71	52	74	55	85	55		65	40	
Karachi.....	176	157	106	59	70	41	11	48	29	45	29	40		28	
Madras.....			10	11											
Montmelin.....		1				1	1	1			1	1			
Nepal: Kathmandu.....	6	1													
Rangoon.....	1	1							1						
Rangoon.....	8	1	1		1										
Rangoon.....	8	1	1		1										
Tientsin.....	34	6				2	2	1		7	9	7			32

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE--Continued

[C indicates cases; D, deaths; P, present]

[illegible]

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE—Continued

(C indicates cases; D, deaths; P, present)

Place	July, 1929	Aug- ust, 1929	Sep- tem- ber, 1929	Octo- ber, 1929	No- vem- ber, 1929	De- cem- ber, 1929	Place	July, 1929	Aug- ust, 1929	Sep- tem- ber, 1929	Octo- ber, 1929	No- vem- ber, 1929	De- cem- ber, 1929
British East Africa (see also table above):							Madagascar (see also table above)—Contd.						
Kenya.....	67	19	28	146	62	---	Moramanga Province.....	C	1	2	5	27	---
Uganda.....	1, 203	866	---	---	---	---	Tamatave Province.....	D	1	2	4	27	---
Uganda.....	1, 973	749	7	12	14	---	Tananarive Province.....	C	2	7	5	---	---
Ecuador: Guayaquil.....	1	1	3	4	3	---	Peru.....	D	16	36	141	141	---
Plague-infected rats.....	---	4	8	5	9	---	Senegal:	C	11	34	135	132	---
Greece (see also table above).....	3	2	2	2	2	---	Baol.....	D	3	---	---	---	---
Indo-China (see also table above).....	37	9	---	---	1	10	Dakar.....	C	22	32	42	45	5
Madagascar (see also table above).....	19	48	195	203	---	---	Louga.....	D	9	13	24	13	2
Ambohitra Province.....	18	46	182	183	---	---	Rufisque.....	C	62	70	26	3	16
Antistrabe Province.....	---	9	9	2	---	---	Thies.....	D	45	65	17	2	5
Itasy Province.....	2	1	13	17	45	---	Tivassoune.....	C	59	121	108	41	1
Majunga Province.....	2	1	13	17	17	---	---	---	39	70	64	24	---
Miarinarivo.....	---	---	5	5	---	---	---	---	22	1	1	---	---
---	---	2	---	---	---	---	---	---	7	1	---	---	---
---	---	2	---	---	---	---	---	---	61	53	34	3	---
---	---	2	---	---	---	---	---	---	34	23	28	3	---
---	---	---	11	12	---	---	---	---	161	188	119	41	8
---	---	---	11	11	---	---	---	---	96	119	55	21	4

SMALLPOX

*C indicates cases; D, deaths; P, present]

Place	June 30- July 27, 1929	July 28- Aug. 24, 1929	Aug. 25- Sept. 19, 1929	Sept. 20- Oct. 19, 1929	Week ended—											
					November, 1929						December, 1929				Jan. 4, 1930	
					Ort. 26, 1929	2	9	16	23	30	7	14	21	28		
Algeria:																
Algiers	C	7	1	1	1	1	1	1	1	1	1	1	1	1	1	
Oran	C	1	5	4	3	1	1	1	1	1	1	1	1	1	1	
Arabia: Aden	C	103	38	4	3	1	1	1	1	1	1	1	1	1	1	
Australia: Fremantle Quarantine Station	C	56	37	1												
Brazil: Porto Alegre	C	1	3	2	2	3	2	2	2	2	2	2	2	2	2	
British East Africa (see also table below):																
Tanganyika	C	10	5	9	3	1	7	18	15	6	4	3	3	3	3	
British South Africa:																
Northern Rhodesia	C	73	4													
Southern Rhodesia	C	4	3	5					2							
Canada:																
Alberta	C	4	4	1	2	4	1	5	5	4	11	7	5	2	2	
Calgary	C	2	1	3	2	4	1	5	5	4	7	7	5	2	2	
Edmonton	C	1	5	15	1	1	1	6	1	6	6	6	2	3	3	
British Columbia—Vancouver	C	14	8	5	13	1	1	1	1	1	1	1	1	1	1	
Manitoba	C	1	2			1	1									
New Brunswick	C	57	7	19	7	3	5	3	6	35	5	10	13	4	28	
Ontario	C															
London	C															
Niagara Falls	C															
North Bay	C															
Ottawa	C	7	3	7	1	5	1	1	1	1	1	1	1	1	1	
Sarnia	C	1	1													
Toronto	C	7	3	1	1	1	1	1	1	1	1	1	1	1	1	
Windsor	C	2														
Prince Edward Island	C															
Quebec	C	2	3	1	7	8	7	6	1	6	2	8	1	1	2	
Quebec	C	2	1													
Riviere du Loup	C															
Saskatchewan	C	2	1	4	1	9	1	1	1	1	1	1	1	1	1	
Saskatoon	C			13												

* Incomplete reports.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

[illegible]

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER--Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

[illegible]

Place	July, 1929	August, 1929	Septem-ber, 1929	October, 1929			November, 1929			December, 1929			Jan. 4, 1930
				October, 1929			November, 1929			December, 1929			
				1-10	11-20	21-31	1-10	11-20	21-30	1-10	11-20	21-31	
Dahomey.....		159	263	64	81	47			19	19	142		
Indo-China (see also table above).....	C	22	2					245					
Ivory Coast.....	C	15		2					P		17		
Sudan (French).....	C	27	29	37	10	1	11	22	16	10	9	6	13
Syria: Beirut.....	D						1	6					
Place													
British East Africa (see also table above):													
Kenya.....	C	60	66						9	10	3	12	41
Chosen.....	C	1							51	1	41	100	
Mexico: Durango (see also table above).....	D	2	2	2	4						9	29	

all (French) (s. -now).

ria (see table below).

Tunisia: Tunis

Turkey (see table below).

Union of South Africa:

Cape Province.....

Natal.....

Transvaal.....

Upper Volta.....

On vessel:

S. S. City of Hereford, at Brisbane, from Calcutta.

S. S. Karoo, at Zanzibar.

S. S. Taipikn, at Manila, from Australia.

S. S. Umvuma, at Cape Town, from London.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER

[C indicates cases; D, deaths; P, present]

[illegible]

Place	June, 1929	July, 1929	August, 1929	September, 1929	October, 1929	November, 1929	December, 1929
Canada: Ontario.....	1						
Chosen: Seoul.....	2						
Czechoslovakia.....	2						
France.....							
Greece: Athens.....	3						
Latvia.....	5						
Lithuania.....							
Peru: Arequipa.....							
Turkey.....							
Yugoslavia.....							
Porto Rumania.....	1						
Tunisia.....	2						
Turkey (see table below).	4						
Union of South Africa:							
Cape Province.....	177						
Natal.....	7						
Orange Free State.....	1						
Transvaal.....	1						
Yugoslavia (see table below).	1						

¹ Press reports show that 10 deaths from typhus fever have occurred in Sao Paulo, Brazil, from Nov. 3 to 30, 1929.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

YELLOW FEVER

[C indicates cases; D, deaths; P, present]

Place	June 2-29, 1929	June 30- July 27, 1929	July 28- Aug. 24, 1929	Aug. 25- Sept. 21, 1929	Sept. 22- Oct. 19, 1929	Week ended—						
						November, 1929				December, 1929		
						2	9	16	23	30	7	14
Brazil:												
Bahia.....		1										
Niteroy.....		1		1								
Para.....		1										
Rio de Janeiro.....		1	0	2	0	0	0	0	0	0	0	0
Colombia:												
Sumacota.....		4										
Socorro ¹		12										
Gold Coast.....												
Liberia: Monrovia.....		4		1								1
		3	1									

¹ From June 19 to July 8, 1929, 41 cases of yellow fever with 23 deaths were reported in Socorro, Colombia.

UNITED STATES TREASURY DEPARTMENT

PUBLIC HEALTH REPORTS

27. MAR. 1930

ISSUED WEEKLY

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SPECIAL ARTICLE

Physiological Response of Guinea Pigs to Ethylene
Dichloride Vapor



UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON: 1930

For sale by the Superintendent of Documents, Washington, D. C. - - - - - Price 5 cents
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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. R. C. WILLIAMS, *Chief of Division*

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PUBLIC HEALTH REPORTS

VOL. 45

JANUARY 31, 1930

NO. 5

ACUTE RESPONSE OF GUINEA PIGS TO VAPORS OF SOME NEW COMMERCIAL ORGANIC COMPOUNDS: I. ETHYLENE DICHLORIDE¹

REPORT OF THE UNITED STATES BUREAU OF MINES TO THE CARBIDE AND CARBON CHEMICALS CORPORATION

By R. R. SAYERS,² W. P. YANT,³ C. P. WAITE,⁴ and F. A. PATTY⁵

REASON FOR INVESTIGATION

A consideration of the hazards to health and safety is an important feature in the innovation of chemicals which may have rather wide use under conditions where persons are exposed to air containing their vapors. Frequently, however, the information necessary for a basis of evaluation of the hazards is lacking, due mainly to the materials, being relatively new products, or at least new to the particular field or conditions of use. In view of this, there is a continual need of research and investigations to supply the information, especially at the present time, when there is considerable activity in the development of new organic compounds of domestic and industrial importance. Fortunately, along with the activity in development, progressive chemical industries have realized the importance of the health aspects in the manufacture, marketing, and utilization of their products, and many have initiated and supported research to that end.

The investigation described in this report was undertaken at the request of the Carbide and Carbon Chemicals Corporation and conducted jointly with the United States Bureau of Mines, under whose direction and supervision it was done at its Pittsburgh Experiment Station.

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¹ This report is the first of a series covering the physiological response attending exposure to vapors of some organic compounds which have recently gained rather wide commercial importance. Published by permission of the Director, U. S. Bureau of Mines. (Not subject to copyright.)

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SCOPE OF WORK

The scope of the work included a study of the physiological response and toxicity of the vapor of ethylene dichloride, as determined by exposure of guinea pigs. The experiments were planned to give information relative to the concentration and periods of exposure which produce no response or but slight response, moderate response, and serious response. Consideration was given only to acute effects as produced by a single exposure.

DESCRIPTION OF MATERIALS USED FOR TESTS

Ethylene dichloride, $C_2H_4Cl_2$, is a colorless liquid which possesses a pleasant chloroformlike odor. The boiling point of the pure compound is $83.5^\circ C.$; specific gravity, 1.2569 at $20/20^\circ C.$; flash point, $14^\circ C.$; soluble in water to the extent of 0.87 g. per 100 g. water at $20^\circ C.$; and vapor pressure 78 mm. Hg. at $20^\circ C.$ Ordinarily, it is very stable and resistant to hydrolysis, though it lends itself readily to synthetic reactions. Under proper conditions both chlorine atoms are replaceable by many other groups.

Ethylene dichloride is principally used as a solvent in the extraction of oils and fats; as a solvent for rubber in the manufacture of dipped goods, and in general is finding increasing use as a substitute for other solvents. A mixture of 75 per cent ethylene dichloride and 25 per cent carbon tetrachloride (to reduce the fire and explosion hazards) is also used under certain conditions as a fumigant.^{6, 7, 8} It has been satisfactorily used to kill moths in over-stuffed furniture, rolled rugs, sealed cartons, and similar places, also for the fumigation of grain and flour to kill weevils. A mixture having the above proportions of ethylene dichloride and carbon tetrachloride is now being marketed as a combined fabric cleaner and fumigant. Ethylene dichloride has also been cited as a stimulant for sprouting potatoes.

Specifications of material used in tests

The ethylene dichloride used in these tests was a commercial product which conformed to the following plant specifications:

⁶ Hoyt, L. F., Comparative tests with certain fumigants. *Ind. & Eng. Chem.*, 20, 835-37 (1928).

⁷ Roark, R. C., and Cotton, R. T., Fumigation tests with certain chlorides. *Jour. Econ. Entomol.*, 21, 135-42 (1928).

⁸ Hoyt, L. F., Fumigation tests with ethylene dichloride, carbon tetrachloride mixtures. *Ind. & Eng. Chem.*, 22, 2632 (1928).

Specific gravity.....	1.254 to 1.264 at 20/20° C.
Initial boiling point.....	Not less than 78° C. at 760 mm.
Boiling range.....	Not less than 90 per cent distills over from 81.7° to 84.7° C. at 760 mm.
Dry point.....	Not more than 86° C. at 760 mm.
Acidity.....	Not more than 0.0005 per cent calculated as HCl.

TEST APPARATUS

The apparatus used for preparing vapor-air mixtures and the chambers used for exposing the animals are shown in Figures 1, 2, 3, and 4. The steel chamber (figs. 1 and 2) was used for making exposure to mixtures which were dangerous from the standpoint of explosions. Briefly, this chamber consisted of a 30-inch length of 20-inch diameter extra-heavy steel pipe closed at the ends by circular pieces of steel plate 2 inches in thickness. The ends of the pipe

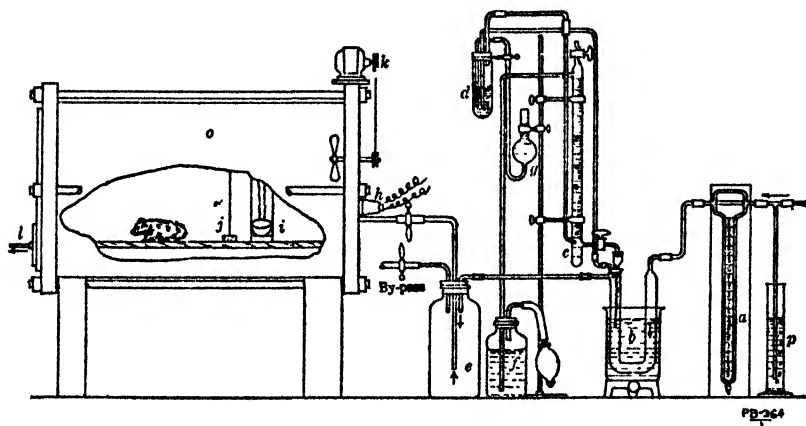


FIGURE 1.—Apparatus for making exposure to vapor-air mixtures close to or within the explosive range

were fitted into $\frac{1}{2}$ -inch channels in the plate and the entire arrangement drawn together with twenty-four $\frac{3}{4}$ -inch stay bolts. The joints were made gas tight by means of thin sheet-lead gaskets placed in the channels. The end of the chamber adjacent to the observers (fig. 2) was pierced by three 2-inch holes covered on the inside with circular pieces of $\frac{3}{4}$ -inch plate glass. Two of the holes were for making observations and the third for illumination by the spot light *h*. The only other openings through this end were two small holes for admitting the vapor-air mixtures and withdrawing samples for analysis and a third hole fitted with a brass bushing through which extended the shaft of an externally driven fan. No lights, electrical apparatus, or connections were inside the chamber. The end of the chamber opposite the position occupied by the observers (fig. 2) had a 10 by 13 inch elliptical opening, which was closed with a skeleton frame removable iron door clamped against a sheet-rubber

gasket. This door was removed only when necessary to place apparatus inside the chamber or for cleaning. A circular opening 5 inches in diameter closed by a slide gate, which could be clamped against a rubber gasket, was provided for introducing and removing the animals. The major portion of the area between a narrow circular frame for the central opening and the frame which encircled the elliptical opening was cut away and the open space covered with parchment to provide relief in event of an explosion within the chamber. The effluent vapor-air mixture escaped through a hole in the door and a waste pipe leading to the exterior of the laboratory. A flat false floor was provided to avoid crowding of the animals due to the curvature of the pipe. An evaporating dish *i* with gauze wicks supported in it was placed in front of the fan and used at the beginning of experiments for evaporating substances within the chamber in order to bring the confined air to the desired vapor composition at the beginning of the test rather than purging or sweeping out the original air content with vapor-air mixtures prepared by the apparatus described in the succeeding paragraph. A screen *j* separated the animals from the evaporating device and fan.

To avoid oxygen deficiency or accumulation of carbon dioxide during the exposure, a stream of the vapor-air mixture was passed through the chamber continually. The apparatus for preparing the mixture is also shown in Figures 1 and 2. In operation air held at constant pressure by regulator *p* is forced in through flow meter *a* at a rate designed to give three air changes per hour in the test chamber *o*. The air is then passed through the U-tube *b*, suspended in an oil bath the temperature of which is maintained a few degrees above the boiling point of the material to be vaporized. The ethylene dichloride measured in burette *c* escapes through small capillary and drops onto a cotton-gauze wick in the outlet side of the U-tube. The flow of liquid is regulated by varying the height of the column of water in pressure regulator *d* by raising or lowering leveling bulb *g*. The number of drops per cubic centimeter are previously found in order to facilitate regulation of the flow; *e* is a mixing chamber, and *f* a reserve chamber of solvent for filling the burette as required. A by-pass connecting to the exterior of the laboratory is provided for use while regulating the flow through the vaporizing apparatus and when it is not desirable to have vapor-air mixtures enter test chamber *o*. In principle, the liquid-measuring device is similar to a Mariotte bottle from which the liquid drops at a constant rate, regardless of change in the level of the liquid. In the particular modifications used in this work, changes in pressure in the liquid in burette *c* are compensated for through pressure regulator *d*. Air fed through *d* enters the burette through a capillary opening at the bottom and simultaneously displaces liquid which escapes through the stopcock and

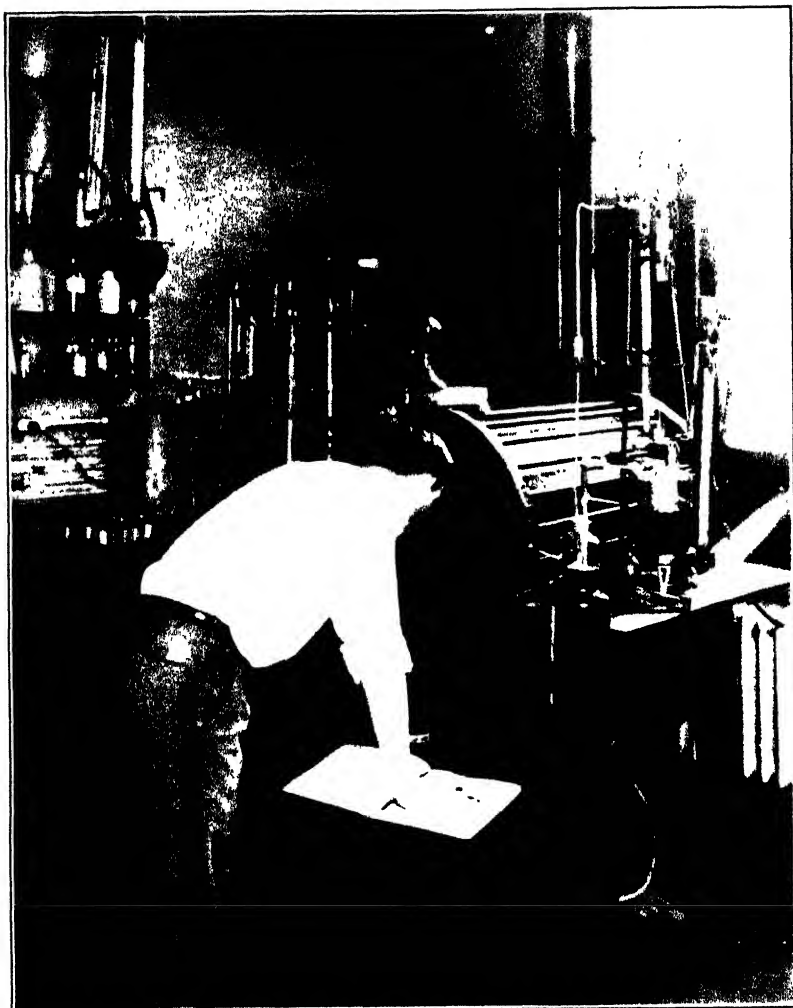


FIGURE 2 Apparatus for preparing vapor-air mixtures of materials which were liquids at room temperatures

drops onto the wick. The success of the dropping arrangement depends upon the delivery of air to the burette in small bubbles and at a regular flow. The size and angle of the capillary air inlets in *d*

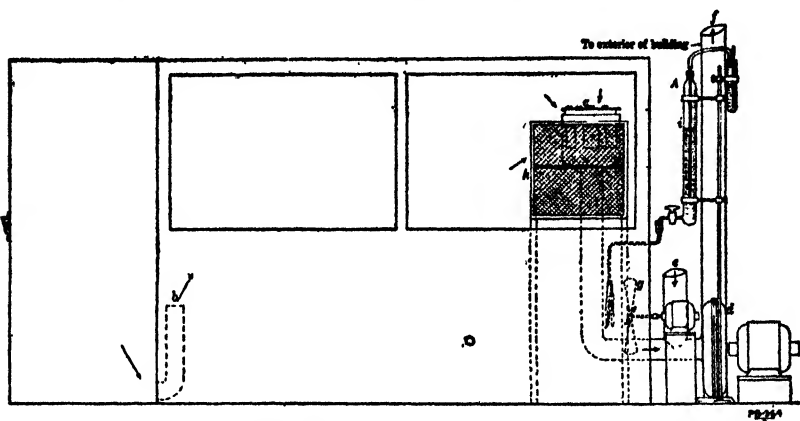


FIGURE 3.—Apparatus for making exposure to noninflammable vapor-air mixtures (side elevation plan)

and into the bottom of *c* are the important features in obtaining small bubbles and regularity of flow.

The large chamber shown in Figures 3 and 4 was used for making exposures to vapor-air mixtures whose composition was a safe margin below the lower inflammable limit. Figure 3 is a side elevation and Figure 4 is a horizontal plan. The capacity of the chamber is 8

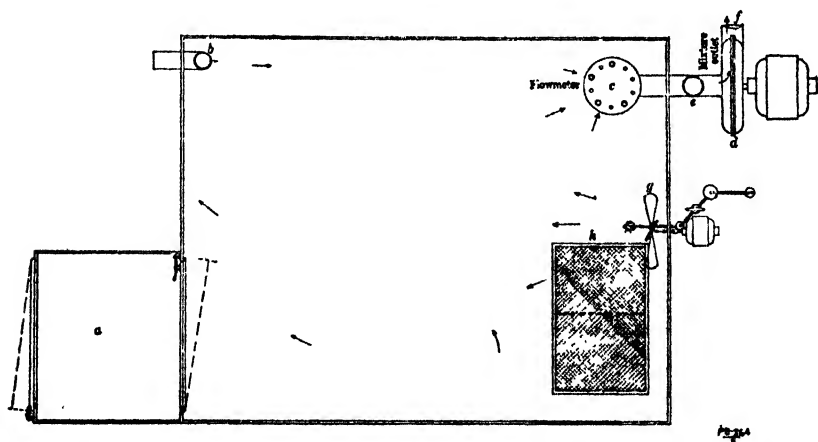


FIGURE 4.—Apparatus for making exposure to noninflammable vapor-air mixtures (horizontal plan)

feet long by 6 feet wide by $5\frac{1}{4}$ feet high (252 cu. ft.) constructed of sheet metal with soldered joints and glass embedded in putty. It is equipped with double doors and an anteroom or "gas lock" *a* for entering and leaving during the course of an experiment.

The air intake *b* is a 2-inch pipe opening 10 inches from the floor and at the opposite end from the exhaust orifice *c*, which is 16 inches from the top of the chamber. A negative pressure is maintained on the exhaust orifice by a motor-driven suction fan *d*, and the differential pressure is indicated by a slope-type draft gage (not shown) and controlled by a damper placed in a by-pass between the chamber and fan. The exhaust from the fan is carried through a 4-inch duct *f* to the exterior of the building. The chamber is equipped with an internal circulating fan *g* whose shaft extends through the wall of the chamber to an electric motor, thus eliminating the motor as a source of ignition in event of an accidental vapor-air mixture of explosive proportions. A 4-compartment screen cage is situated above the fan and near the windows in the end opposite the door.

The apparatus and method for preparing ethylene dichloride vapor-air mixtures in this large chamber is much the same as previously described for the small chamber *o*, Figures 1 and 2, except that the gas and air enter the chamber separately and are mixed inside the chamber rather than externally, as *e*, Figure 1.

The ethylene dichloride is measured by means of a large burette and allowed to drop on a wick hanging in front of the fan. The dropping of liquid from the burette *i* (fig. 3) was regulated by a pressure regulator similar to the one shown in Figure 1, except that it is adjusted to atmospheric pressure. Compensation for changes in pressure of the air stream are unnecessary.

The air flow in through *b* and out *c* was regulated to two changes per hour and liquid measured in at a rate required to give the desired concentration of vapors. The air-measuring device *c* consists of a series of 10 small orifices of equal size designed to permit wide variations in flow, as any number of orifices between 1 and 10 can be used by inserting or removing rubber stoppers. The fan and duct are large enough to maintain the same pressure differential, regardless of the number of orifices inserted, and the flow for any number of orifices at a given differential is a multiple of the flow for a single orifice at that differential. The variability of flow is further widened by changing the pressure differential by means of by-pass *e*. The orifice plate forms the top of an open and cylindrical cup which extends into a water seal at the bottom of a truncated cone. The water seal readily permits raising the cup and allowing the air to enter the exhaust duct unobstructed through the square side slots (fig. 3) when it is desired to sweep large volumes through the chamber quickly to remove the atmosphere used in a preceding experiment.

METHODS OF COMPUTATION AND ANALYSIS OF VAPOR-AIR MIXTURES

The composition of the vapor-air mixtures were calculated from the volume of air and liquid entering the system in unit time. No

attention was given to possible deviation from the gram-molecular-volume relation of a perfect gas. The results of frequent checks by chemical analysis substantiated the validity of the computed values for the purpose of this study. The results obtained by computation were frequently checked by combustion analysis using an explosion pipette and electrolytic gas, and in low concentrations by absorption in air-equilibrated activated charcoal and determining the gain in weight.

TEST PROCEDURE

All animals used for making exposure to a given concentration of vapor were exposed in groups of three or six. The choice of number rested on a combination of factors, such as the probable effect, the importance of the experiment in relation to the general plan, and the information already at hand regarding somewhat similar conditions. When the small chamber was used for dealing with explosive mixtures only 1 group of 6 or 2 groups of 3 pigs each were admitted at the start of an experiment. As many as 4 groups of 6 pigs each could easily be accommodated in the large chamber. The object in simultaneously admitting several groups was that they could be successively removed after various periods of exposure and thus the range of results from no response to serious response could be covered in a single experiment.

The technique of performing the experiments was to adjust the vaporizing apparatus to give a flow of vapor-air mixture of the desired concentration, but with the mixture by-passed around the chamber. The quantity of the substance necessary to create a similar vapor concentration in the chamber was admitted direct, whereupon the by-pass was closed and the flow from the vaporizing apparatus led into the chamber. The animals were then quickly placed in the chamber and allowed to remain for a predetermined period. During exposure they were continuously observed for symptoms. At the end of a period the entire number of a single group were quickly removed. One-third of the group was killed almost immediately (if they did not die before removal) by injection of approximately 2 c. c. of a saturated solution of magnesium sulphate into the heart. At the end of 4 days 2 more were examined, and the remainder by the end of 8 days, provided that again they did not die earlier. Groups of unexposed control animals from the same stock as the exposed animals were also observed and examined. All animals that died or were killed were examined for gross pathological changes and specimens of tissue taken for microscopic examination, but as the latter has not been completed the results thereof are not included in this report, but will be described in a later report dealing entirely with microscopic pathology produced by inhaling vapors of ethylene dichloride.

changes were found which simulated the changes occurring in the animals exposed to the vapors. In two of the control animals a pearly gray consolidation of the upper lobes of the lungs was noted. These lobes cut with difficulty and gave evidence of fibrosis and calcification.

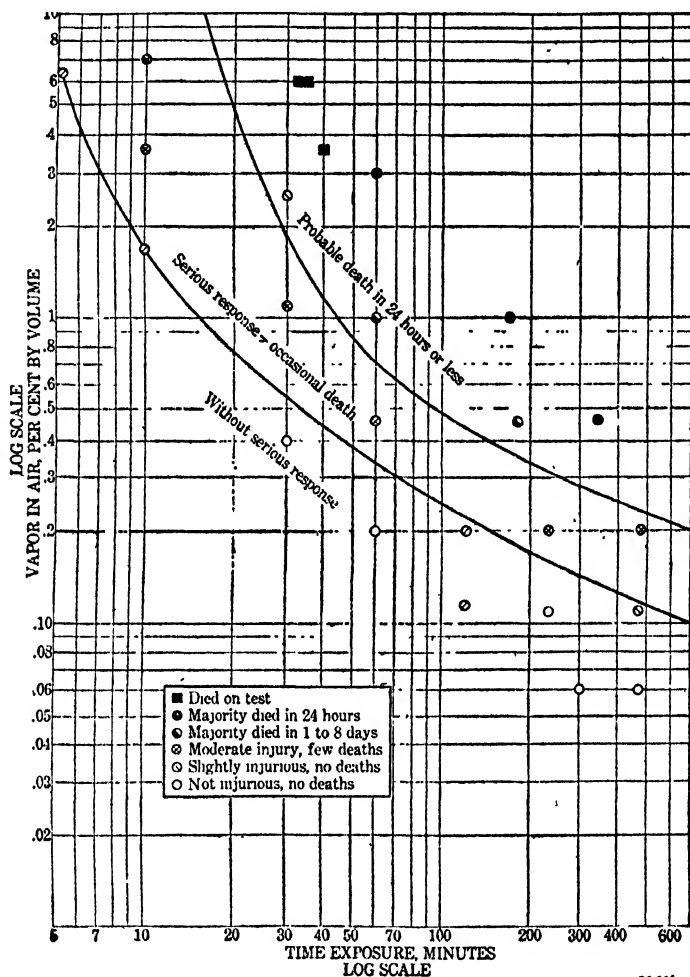


FIGURE 5.—Acute effects of exposure of guinea pigs to ethylene dichloride vapor in air

Exposed animals.—The pathological findings in animals that died during exposure (see fig. 5 for conditions of exposure causing death on test) were congestion and edema of the lungs with a generalized passive congestion throughout the abdominal viscera. The lungs in these cases were voluminous and deep pink in color. The cut section bled freely and a frothy serous exudate was expressible from

the bronchioles and air sacs. The rest of the viscera showed a prominence of the surface vessels and on cut section were found to be apparently engorged with blood.

The findings in those animals that were exposed to conditions that caused death to some of the members of a group within one to eight days (represented in fig. 5 by filled, half-filled, and crossed circles) varied with the severity of exposure, the time of autopsy, and whether or not the animal died as a result of the exposure.

The animals that died as a result of the exposure within one to eight days showed congestion and edema of the lungs with apparent degenerative changes in the kidneys. The kidneys were found to be pale, dirty yellow in color, and boggy to palpation. The cut section revealed the cortex pale, shrunken, and separated from the medulla by a prominent zone of hyperemia. The medulla was hyperemic in appearance.

The findings in the animals that were killed immediately after exposure were congestion and edema of the lungs, the severity of which varied directly with the severity of exposure, and congestion of the liver, spleen, and kidneys.

In those animals which did not die and were killed three to four days after exposure the congestion and edema of the lungs was apparently worse than that noted in the preceding with a presence of the kidney lesion noted in those animals that died as a result of the exposures.

Animals killed seven to eight days following exposure showed a distinct decrease in the lung condition with a change in the gross appearance of the kidney. In these the kidneys were found to be hyperemic and congested, the apparent degenerative appearance of the cortex not being found.

The findings in the animals killed immediately after exposure to conditions (see fig. 5 for concentration of vapor and duration of exposure) that did not cause death but which caused some pathological injury were similar in character but considerably milder in degree and less frequent in occurrence than those found in animals which were exposed to conditions that caused death to some members of the group. The lesions were principally slight congestion or hyperemia of lungs, kidney, and liver. The lung lesion was absent in the large majority of cases. In animals killed three to four days following exposure the lung lesion was a little more pronounced than noted in the animals killed immediately after exposure. In animals killed seven to eight days following exposure the previous findings were negative in most cases, with a few cases of congestion of the kidney and singular cases of lung congestion.

Discussion of pathology

The principal pathological finding in animals exposed to ethylene dichloride vapors was congestion and edema of the lungs, a severe degree being found in all animals that died as a result of the exposures. The amount of congestion and edema was directly proportional to the concentration of the vapors and duration of exposure. The lesion appeared to be worse for three or four days following exposure and then apparently began to clear up, being only slight or entirely lacking in those animals that survived seven or eight days. The occurrence of edema in animals exposed to ethylene dichloride vapors has been recently reported by other investigators.⁹

The kidney lesion noted in those animals that died as a result of the exposure was apparently secondary to the damage to the lung and more or less dependent upon the elimination of the products of decomposition of the gas or of the toxic products resulting from the lung damage. This was inferred from the fact that the lesion did not occur in those animals that died during exposure, nor was it present as a constant finding in those animals killed immediately after test. Furthermore, a clearing up of the lung lesions was accompanied by changes in the gross appearance of the kidney, which were apparently indicative of a reparative process.

The pathological changes were directly related to the occurrence of death, but had no apparent relation to symptoms exhibited during exposure.

Fatality and summary of physiological response

The fatality and summary of the response of guinea pigs exposed to the conditions used in the tests with ethylene dichloride vapor in air are shown graphically in Figure 5. From this graph may be ascertained the probable response attending a given condition as regards concentration of vapor and period of exposure. The results of each experiment are represented symbolically in six degrees of response. Each point on the graph represents the entire group of animals exposed in a particular experiment. With few exceptions the symbol describes the condition of at least half the individuals, and in the majority of cases the condition of all or nearly all the individuals of the group.

As will be noted from the legend in Figure 5, the six degrees of response are:

1. Died on test.
2. Majority died in 24 hours.
3. Majority died in one to eight days.
4. Moderate injury, few deaths.
5. Slightly injurious, no deaths.
6. Not injurious, no deaths.

⁹ Kistler, G. H., and Luckhardt, A. B., *Anesthesia and Analgesia*, 8, No. 2, pp. 65-74, 1929.

In addition to representing the response of each group by symbols, these have been separated into three general fields or zones of probable response, namely—

1. Probable death in 24 hours or less.
2. Serious response—occasional death.
3. Without serious response.

It should be noted that a logarithmic scale has been used for both the abscissæ and ordinates of the graph shown in Figure 5. This mode of representation appears desirable in view of the nature of the data and significance of the results within certain ranges of conditions; for example, in the long exposures a fraction of 1 per cent change in composition is of more importance than exact periods of time, whereas with short exposures it is desired to lay more emphasis on the time than on small changes in composition of the air.

Table 2 gives four rather conventional degrees of response which may be used for making comparison to data which appear in the literature^{10,11,12,13} for other compounds.

TABLE 2.—*Acute effects of exposure of guinea pigs to ethylene dichloride vapor*

Period	Concentration, per cent by volume
Kills in few minutes	10-20
Dangerous in 30 to 60 minutes	0.1-0.6
Maximum amount for 60 minutes without serious disturbance	.35
Slight symptoms after several hours at maximum amount without serious disturbance	1

* Air saturated at 20° C. contains approximately 10 per cent vapor of ethylene dichloride.

GENERAL DISCUSSION OF HEALTH HAZARDS

A comparison of the results obtained for ethylene dichloride with those reported in the literature for other compounds indicates that for single exposures and periods of an hour or more the toxicity of ethylene dichloride is of about the same order as that of gasoline, benzene, carbon tetrachloride, and chloroform.¹⁴ For periods of less than an hour it is less toxic than these compounds.

The odor of ethylene dichloride is distinct and noticeable in relatively safe concentrations. Also, it produces marked symptoms of dizziness in concentrations that will not cause permanent damage. If the odor or the first symptoms of dizziness are taken as a warning of the presence of vapor and the person retires from the contaminated atmosphere it is not likely that injury will occur from acute exposure.

¹⁰ Sayers, R. R., Yant, W. P., Thomas, B. G. H., and Berger, L. B.: Physiological response attending exposure to vapors of methyl bromide, methyl chloride, ethyl bromide, and ethyl chloride. U. S. Public Health Service Bull. No. 185, 1920, 56 pp.

¹¹ International Critical Tables, first edition (1927), vol. 2, p. 318. Also see errata sheet, vol. 2.

¹² Henderson, Y. H., and Haggard, H. H.: Noxious Gases. American Chemical Society Monograph No. 35, 1927, Chemical Catalog Co., New York.

¹³ Fieldner, A. C., Katz, S. H., and Kinney, S. P.: Gas Masks for Gases Met in Fighting Fires. U. S. Bureau of Mines Tech. Paper 248, 1921, 56 pp.

¹⁴ International Critical Tables, first edition (1927), vol. 2, p. 318. Also see errata sheet, vol. 2.

Serious effects might easily result, however, from forced exposure, involuntary exposure, or exposure to a high concentration of vapor which would cause unconsciousness before escape could be made.

In conclusion, it should be stated that the investigation described in this report was designed to give information pertaining to the relative toxicity and effects of a single exposure to ethylene dichloride vapor. Accordingly the results can not be interpreted as applying to the possible effects of repeated exposure. There were, however, no indications that repeated exposure might cause a chronic type of poisoning of a nature other than the logical expectation of a possible accumulation of the effects noted and described for acute poisoning, when the daily exposure is sufficient to cause the latter. It is always a safe recommendation, however, that the manufacture, distribution, and use of new chemicals of this nature be accompanied by a period of observation of the effect on health, so that if poisoning occurs it may be detected in the incipient stage, thereby obviating serious results and permitting the design of a remedy for the situation.

SUMMARY AND CONCLUSION

The acute physiological response of guinea pigs exposed to air containing ethylene dichloride vapors was determined. The concentrations of vapor and periods of exposure ranged from those which produced death in a few minutes to those that caused no apparent effect after several hours. The symptoms, gross pathology, and fatality are given, together with a brief discussion of potential health hazards.

1. In the order of occurrence, the symptoms produced in guinea pigs by inhalation of ethylene dichloride vapor are eye and nose irritation, vertigo, static and motor ataxia, retching movements, semiconsciousness and unconsciousness accompanied by uncoordinated movements of the extremities, and death if exposure is continued. Exposure to 6 per cent vapors causes all these symptoms, excepting death, to occur in less than 10 minutes, and death in about 30 minutes. Exposure to 1 per cent causes all the symptoms to appear in 25 minutes with the possibility of death occurring a day or more following an exposure of about 15 to 20 minutes. Exposure to 0.12 per cent did not cause apparent symptoms or death following an exposure of eight hours. Tables in the report should be consulted for intermediate and additional data.

2. The gross pathological findings were hyperemia, congestion and edema of the lungs with secondary degenerative changes in the kidneys. The severity of the pathology increased with the concentration of vapor and duration of exposure. The lung lesion was the most prominent and probably the greatest causative factor in death. No serious pathology was found for the following concentrations of vapor and periods of exposure: 6 per cent for 5 minutes, 1.7 per cent for 10 minutes, 0.4 per cent for 30 minutes, 0.2 per cent for 120

minutes, and 0.11 per cent for 480 minutes. Also these concentrations and exposures did not cause the death of the animals.

3. The summarized physiological response given in the four degrees usually reported are: 10 to 20 per cent kills in a few minutes; 0.4 to 0.6 per cent, dangerous in 30 to 60 minutes; 0.35 per cent maximum amount for 60 minutes without serious disturbances; 0.1 per cent, slight symptoms after several hours or maximum amount without serious disturbances.

4. A comparison of the results obtained with those reported in the literature for other compounds indicates that for single exposures and periods of an hour or more the toxicity of ethylene dichloride appears to be of about the same order as gasoline, benzene, carbon tetrachloride, and chloroform. For periods of less than an hour it is less toxic than these compounds.

5. The odor of ethylene dichloride is distinct and noticeable, and warning symptoms are produced by relatively safe concentrations.

AUTOMOBILE FATALITIES IN 78 LARGE CITIES, 1925-1929

The Department of Commerce, through the Bureau of the Census, announces that for the 52-week period ended December 29, 1929, there were 8,403 deaths from automobile accidents in 78 large cities of the United States, as compared with 7,516 for the corresponding period of 1928—an increase in 1929 of nearly 12 per cent over the figures for 1928.

For the four weeks ended December 28, 1929, there were reported 646 automobile fatalities in these cities, as compared with 771 such deaths during the corresponding period of 1928.

The following table gives a comparison, by 4-week periods, of the numbers of deaths from automobile accidents in the 78 large cities from May, 1925, to December, 1929:

Automobile fatalities for 78 cities by 4-week periods

1925		1926		1927		1928		1929	
4 weeks ended—	No.	4 weeks ended—	No.	4 weeks ended—	No.	4 weeks ended—	No.	4 weeks ended—	No.
		Jan. 30.....	428	Jan. 29.....	471	Jan. 28.....	531	Jan. 26.....	612
		Feb. 27.....	374	Feb. 26.....	411	Feb. 25.....	504	Feb. 23.....	166
		Mar. 27.....	346	Mar. 26.....	411	Mar. 24.....	121	Mar. 23.....	525
		Apr. 24.....	423	Apr. 23.....	495	Apr. 21.....	530	Apr. 20.....	528
May 23.....	421	May 22.....	493	May 21.....	530	May 19.....	537	May 18.....	582
June 20.....	492	June 19.....	547	June 18.....	507	June 16.....	506	June 15.....	602
July 18.....	493	July 17.....	482	July 16.....	573	July 14.....	523	July 13.....	635
Aug. 15.....	467	Aug. 14.....	499	Aug. 13.....	510	Aug. 11.....	585	Aug. 10.....	660
Sept. 12.....	521	Sept. 11.....	558	Sept. 10.....	526	Sept. 8.....	622	Sept. 7.....	710
Oct. 10.....	527	Oct. 9.....	650	Oct. 8.....	662	Oct. 6.....	624	Oct. 5.....	752
Nov. 7.....	612	Nov. 6.....	676	Nov. 5.....	684	Nov. 3.....	624	Nov. 2.....	840
Dec. 5.....	623	Dec. 4.....	632	Dec. 3.....	619	Dec. 1.....	738	Nov. 30.....	839
1926		1927							
Jan. 2.....	550	Jan. 1.....	522	Dec. 31.....	621	Dec. 29.....	771	Dec. 28.....	646
52 weeks.....			6, 630		7, 063		7, 516		8, 307

¹ Incomplete.

DEATHS DURING WEEK ENDED JANUARY 18, 1930

Summary of information received by telegraph from industrial insurance companies for the week ended January 18, 1930, and corresponding week of 1929. (From the Weekly Health Index, January 23, 1930, issued by the Bureau of the Census, Department of Commerce)

	Week ended Jan 18, 1930	Corresponding week, 1929
Policies in force.....	75, 374, 773	72, 868, 895
Number of death claims.....	15, 936	22, 838
Death claims per 1,000 policies in force, annual rate.....	11. 0	16. 3

Deaths from all causes in certain large cities of the United States during the week ended January 18, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index, January 23, 1930, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Jan. 18, 1930		Annual death rate per 1,000, corre- sponding week, 1929	Deaths under 1 year		Infant mor- tality rate, week ended Jan. 18, 1930 ²
	Total deaths	Death rate ¹		Week ended Jan 18, 1930	Corre- sponding week, 1929	
Total (63 cities).....	7,384	13.2	18.8	641	946	158
Akron.....	43			10	12	91
Albany.....	44	19.1	21.7	3	8	66
Atlanta.....	89	18.2	19.4	13	13	137
White.....	41			3	8	95
Colored.....	48	(5)	(5)	10	5	159
Baltimore.....	214	13.4	23.0	16	29	54
White.....	166			10	20	43
Colored.....	48	(5)	(5)	6	9	97
Birmingham.....	82	19.2	37.3	3	18	28
White.....	45			2	10	31
Colored.....	37	(5)	(5)	1	8	24
Boston.....	213	13.9	23.0	30	30	85
Bridgport.....	37			6	14	103
Buffalo.....	131	12.3	23.5	19	23	85
Cambridge.....	28	11.6	18.7	3	5	56
Camden.....	31	11.9	16.2	1	4	18
Canton.....	24	10.7	11.2	3	3	74
Chicago.....	764	12.6	15.7	54	79	48
Cincinnati.....	128			3	24	18
Cleveland.....	197	10.2	19.7	28	35	84
Columbus.....	67	15.2	23.0	5	7	49
Dallas.....	75	18.0	24.2	8	14	
White.....	56			5	11	
Colored.....	19	(5)	(5)	3	3	
Dayton.....	37	10.5	14.4	2	3	30
Denver.....	89	15.8	20.2	5	6	52
Des Moines.....	54	18.5	14.8	4	2	69
Detroit.....	292	11.0	15.6	32	53	49
Duluth.....	20	8.9	11.6	2	1	54
El Paso.....	43	19.0	18.6	5	13	
Erie.....	24			3	5	64
Fall River.....	29	11.3	24.8	2	3	46
Flint.....	28	9.8	15.1	6	8	70
Fort Worth.....	35	10.7	20.2	5	5	
White.....	31			3	4	
Colored.....	4	(5)	(5)	2	1	
Grand Rapids.....	31	9.8	8.0	4	3	61
Houston.....	50			3	11	
White.....	36			2	7	
Colored.....	14	(5)	(5)	1	4	
Indianapolis.....	92	12.6	14.7	10	12	75
White.....	74			7	9	61
Colored.....	18	(5)	(5)	3	3	161
Jersey City.....	71	11.4	22.6	4	13	35
Kansas City, Kans.....	30	13.2	15.4	6	5	142
White.....	23			5	4	133
Colored.....	7	(5)	(5)	1	1	217
Kansas City, Mo.....	107	14.3	16.0	10	9	78
Knoxville.....	28	13.9	33.6	1	6	23
White.....	19			1	4	26
Colored.....	9	(5)	(5)	0	2	0

(Footnotes at end of table.)

Deaths from all causes in certain large cities of the United States during the week ended January 18, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index, January 23, 1930, issued by the Bureau of the Census, Department of Commerce)—Contd.

City	Week ended Jan. 18, 1930		Annual death rate per 1,000, corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Jan 18, 1930
	Total deaths	Death rate		Week ended Jan. 18, 1930	Corresponding week, 1929	
Los Angeles.....	339			19	18	58
Lowell.....	22			2	4	47
Lynn.....	28	13.8	13.8	5	3	126
Milwaukee.....	103	9.9	17.2	12	21	60
Minneapolis.....	118	13.5	14.4	7	10	45
Nashville.....	40	11.9	33.2	4	8	62
White.....	34			3	5	62
Colored.....	6	(¹)	(¹)	1	3	13
New Bedford.....	30			1	8	26
New Haven.....	45	12.5	14.4	2	1	39
New Orleans.....	168	20.4	24.2	12	11	70
White.....	99			7	3	62
Colored.....	69	(²)	(²)	5	8	84
New York.....	1,526	13.2	20.0	147	232	62
Bronx Borough.....	189	10.4	16.5	19	26	45
Brooklyn Borough.....	523	11.8	17.8	50	90	53
Manhattan Borough.....	619	18.4	26.8	55	89	90
Queens Borough.....	151	9.2	14.5	19	20	55
Richmond Borough.....	44	15.2	27.7	4	7	74
Newark, N. J.....	100	11.0	19.3	11	13	58
Oakland.....	84	16.0	15.4	5	6	60
Oklahoma City.....	33			7	8	137
Omaha.....	51	11.9	16.9	1	6	11
Paterson.....	27	9.7	18.7	2	5	35
Philadelphia.....	478	12.1	17.9	30	59	44
Pittsburgh.....	166	12.8	18.7	22	21	81
Portland, Oreg.....	88			3	5	37
Providence.....	73	13.3	16.2	5	9	46
Richmond.....	53	14.2	23.6	6	5	89
White.....	30			1	0	22
Colored.....	23	(³)	(³)	5	5	218
Rochester.....	71	11.3	14.5	5	9	44
St. Louis.....	216	13.3	19.2	12	13	39
St. Paul.....	64			2	2	20
Salt Lake City ⁴	38	14.4	15.9	5	5	79
San Antonio.....	93	22.2	26.3	6	16	
San Diego.....	48			1	1	21
San Francisco.....	201	17.9	16.7	9	5	62
Schenectady.....	14	7.8	24.0	0	4	0
Seattle.....	84	11.1	12.5	3	6	30
Somerville.....	31	15.7	16.8	5	3	163
Spokane.....	33	15.8	17.7	0	1	0
Springfield, Mass.....	44	15.3	15.0	1	3	16
Syracuse.....	63	16.5	23.5	5	5	62
Tacoma.....	22	10.4	11.8	1	0	26
Toledo.....	77	12.8	15.6	4	14	37
Trenton.....	46	17.3	20.3	2	4	37
Utica.....	44	22.0	27.5	3	2	85
Washington, D. C.....	146	13.8	21.3	12	23	70
White.....	100			9	9	78
Colored.....	46	(⁵)	(⁵)	3	14	53
Waterbury.....	23			4	4	102
Wilmington, Del.....	31	12.6	17.9	2	1	45
Worcester.....	41	10.8	15.0	5	2	65
Yonkers.....	30	12.9	20.2	2	3	48
Youngstown.....	34	10.2	17.7	4	8	63

¹ Annual rate per 1,000 population

² Deaths under 1 year per 1,000 births Cities left blank are not in the registration area for births

³ Data for 71 cities

⁴ Deaths for week ended Friday.

⁵ In the cities for which deaths are shown by color the colored population in 1920 constituted the following percentages of the total population. Atlanta, 31, Baltimore, 15, Birmingham, 39, Dallas, 15, Fort Worth, 14, Houston, 25, Indianapolis, 11, Kansas City, Kans., 14, Knoxville, 15, Nashville, 30, New Orleans, 26, Richmond, 32, and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended January 18, 1930, and January 19, 1929

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended January 18, 1930, and January 19, 1929

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Jan 18, 1930	Week ended Jan 19, 1929	Week ended Jan 18, 1930	Week ended Jan 19, 1929	Week ended Jan 18, 1930	Week ended Jan 19, 1929	Week ended Jan 18, 1930	Week ended Jan 19, 1929
New England States:								
Maine.....	2	8	9	2,134	3	218	0	2
New Hampshire.....	9	2	1	170	28	61	0	0
Vermont.....	1	4	—	347	13	24	0	0
Massachusetts.....	130	116	9	2,277	225	532	6	0
Rhode Island.....	12	13	—	790	2	51	0	0
Connecticut.....	22	34	9	3,359	44	283	0	2
Middle Atlantic States								
New York.....	152	259	129	3,249	379	843	17	20
New Jersey.....	106	128	14	1,693	154	157	5	7
Pennsylvania.....	191	165	—	—	613	1,003	11	9
East North Central States.								
Ohio.....	60	42	11	1,138	989	299	8	2
Indiana.....	27	22	—	336	67	141	16	0
Illinois.....	180	128	105	511	268	252	18	9
Michigan.....	72	79	3	1,368	291	95	28	30
Wisconsin.....	25	22	71	2,483	679	154	3	12
West North Central States								
Minnesota.....	27	20	1	495	123	131	2	2
Iowa.....	14	4	—	—	165	—	2	3
Missouri.....	36	55	20	1,193	33	169	16	13
North Dakota.....	21	7	—	172	12	28	3	9
South Dakota.....	1	1	—	12	25	17	0	0
Nebraska.....	21	27	50	243	249	21	8	1
Kansas.....	22	18	9	347	219	24	4	3
South Atlantic States.								
Delaware.....	6	1	—	47	—	4	0	0
Maryland.....	30	27	32	5,579	6	56	1	1
District of Columbia.....	12	9	—	407	2	4	0	0
West Virginia.....	13	25	37	5,733	116	88	0	2
North Carolina.....	56	51	38	—	21	23	3	0
South Carolina.....	18	20	981	4,123	—	5	6	0
Georgia.....	21	14	180	3,833	30	97	5	1
Florida.....	12	7	9	713	32	18	0	1
East South Central States:								
Kentucky.....	15	10	—	2,734	63	—	0	0
Tennessee.....	25	6	123	4,495	269	5	9	1
Alabama.....	22	31	129	12,444	28	114	5	3
Mississippi.....	16	13	—	4,658	—	—	8	0

¹ New York City only.

² Week ended Friday.

*Cases of certain communicable diseases reported by telegraph by State health officers
for weeks ended January 18, 1930, and January 19, 1929—Continued*

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Jan. 18, 1930	Week ended Jan. 19, 1929	Week ended Jan. 18, 1930	Week ended Jan. 19, 1929	Week ended Jan. 18, 1930	Week ended Jan. 19, 1929	Week ended Jan. 18, 1930	Week ended Jan. 19, 1929
West South Central States¹								
Arkansas.....	3	24	75	3,456	9	29	2	2
Louisiana.....	34	14	34	7,856	36	57	9	2
Oklahoma ²	37	47	132	7,836	30	11	0	23
Texas.....	54	46	68	1,886	79	20	1	3
Mountain States.								
Montana.....	3	3	—	24	12	130	2	1
Idaho.....	—	—	—	10	45	8	1	6
Wyoming.....	2	—	3	404	3	2	0	0
Colorado.....	5	7	—	182	26	12	8	10
New Mexico.....	8	5	3	120	161	3	2	1
Arizona.....	3	2	14	11	2	13	7	11
Utah ²	1	3	—	4	78	1	4	5
Pacific States								
Washington.....	2	15	—	42	73	48	2	5
Oregon.....	8	11	69	284	22	44	0	2
California.....	93	73	110	455	490	32	18	4
Division and State	Polomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Jan. 18, 1930	Week ended Jan. 19, 1929	Week ended Jan. 18, 1930	Week ended Jan. 19, 1929	Week ended Jan. 18, 1930	Week ended Jan. 19, 1929	Week ended Jan. 18, 1930	Week ended Jan. 19, 1929
New England States								
Maine.....	0	0	45	23	0	0	3	0
New Hampshire.....	0	0	19	15	0	0	0	0
Vermont.....	0	0	5	5	7	0	0	0
Massachusetts.....	2	0	354	235	0	0	4	3
Rhode Island.....	0	0	23	27	0	0	1	0
Connecticut.....	0	1	84	56	0	0	1	0
Middle Atlantic States								
New York.....	0	1	423	464	14	0	10	15
New Jersey.....	1	0	251	143	0	0	2	2
Pennsylvania.....	1	1	478	378	1	0	12	6
East North Central States								
Ohio.....	0	0	262	195	269	36	7	2
Indiana.....	0	0	224	149	226	72	1	0
Illinois.....	2	2	531	362	147	104	14	7
Michigan.....	1	0	340	301	90	28	2	4
Wisconsin.....	0	1	116	167	38	6	6	2
West North Central States¹								
Minnesota.....	0	1	143	123	3	0	0	0
Iowa.....	0	0	59	113	108	32	2	0
Missouri.....	0	0	71	74	60	46	5	2
North Dakota.....	2	0	23	27	15	0	0	0
South Dakota.....	1	0	27	22	38	39	0	0
Nebraska.....	0	0	79	85	37	52	1	1
Kansas.....	1	0	158	107	68	73	4	2
South Atlantic States¹								
Delaware.....	0	0	15	3	0	0	0	0
Maryland ²	0	0	80	62	0	2	3	2
District of Columbia.....	0	0	19	22	0	0	0	0
West Virginia.....	1	1	36	24	32	7	10	5
North Carolina.....	0	0	84	2	59	13	3	1
South Carolina.....	1	1	21	15	4	0	7	2
Georgia.....	0	0	36	16	0	0	8	0
Florida.....	1	0	15	7	2	1	2	1
East South Central States								
Kentucky.....	0	0	63	43	42	2	2	2
Tennessee.....	0	0	26	11	14	1	3	1
Alabama.....	1	0	35	26	0	1	11	0
Mississippi.....	0	0	13	5	0	0	1	2

¹ Week ended Friday.

² Figures for 1930 are exclusive of Oklahoma City and Tulsa and for 1929 are exclusive of Tulsa only.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended January 18, 1930, and January 19, 1929—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Jan. 18, 1930	Week ended Jan. 19, 1929	Week ended Jan. 18, 1930	Week ended Jan. 19, 1929	Week ended Jan. 18, 1930	Week ended Jan. 19, 1929	Week ended Jan. 18, 1930	Week ended Jan. 19, 1929
West South Central States.								
Arkansas.....	0	0	18	22	16	3	1	1
Louisiana.....	0	0	26	32	3	5	10	8
Oklahoma ¹	0	0	33	35	81	39	4	0
Texas.....	1	0	52	31	122	40	2	2
Mountain States:								
Montana.....	0	0	28	35	16	10	0	0
Idaho.....	0	0	14	12	21	19	0	5
Wyoming.....	0	0	5	5	8	9	0	0
Colorado.....	1	0	26	17	34	14	3	1
New Mexico.....	0	0	18	12	2	2	8	1
Arizona.....	0	0	11	4	33	1	2	0
Utah ¹	0	0	11	26	2	3	7	0
Pacific States								
Washington.....	0	0	54	38	95	76	1	4
Oregon.....	2	0	47	32	25	47	3	2
California.....	2	1	278	378	157	41	8	3

¹ Week ended Friday.

² Figures for 1930 are exclusive of Oklahoma City and Tulsa and for 1929 are exclusive of Tulsa only

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Menin- gococ- cus menin- gus	Diph- theria	Influenza	Malaria	Measles	Pella- gra	Poli- myelitis	Scarlet fever	Small- pox	Ty- phoid fever
<i>December, 1929</i>										
Alabama.....	3	214	411	193	32	13	2	130	11	40
Louisiana.....	24	199	159	56	58	16	1	76	4	35
Maine.....	2	14	24		30		0	172	0	11
Maryland.....	3	111	151	5	66		1	316	0	29
Minnesota.....	14	123	4		795		1	529	75	26
New Hampshire.....		17	3				2	76	0	
New York.....	72	748		9	1,173		10	1,527	35	46
Ohio.....	27	362	145	1	1,996		12	1,235	763	53
Oregon.....	2	32	101		98		1	156	53	7
Tennessee.....	22	109	480	20	77	7	5	156	43	35
Vermont.....		11			120		0	76	22	1
Wyoming.....	3	20	1		12		0	22	50	2

<i>December, 1929</i>		<i>Chicken pox—Continued</i>	
Anthrax:	Cases	Tennessee.....	Cases
Louisiana.....	1	Vermont.....	177
New York.....	1	Wyoming.....	39
Botulism:		Conjunctivitis:	
New York.....	1	Maine.....	4
Chicken pox:		Dengue:	
Alabama.....	83	Alabama.....	1
Louisiana.....	66	Diarrhea:	
Maine.....	316	Maryland.....	9
Maryland.....	420	Diarrhea and enteritis (under 2 years):	
Minnesota.....	1,642	Ohio.....	10
New York.....	2,865	Dysentery:	
Ohio.....	3,265	Louisiana.....	2
Oregon.....	223	Maryland.....	6

Dysentery—Continued.	Cases	Scabies:	Cases
Minnesota.....	1	Maryland.....	3
Minnesota (amebic).....	1	Oregon.....	6
New York.....	6	Septic sore throat:	
Tennessee.....	1	Louisiana.....	3
Favus:		Maryland.....	11
Maine.....	2	New York.....	15
Food poisoning:		Ohio.....	50
Ohio.....	1	Oregon.....	6
German measles:		Tennessee.....	1
Maine.....	13	Wyoming.....	2
Maryland.....	14	Tetanus:	
New York.....	151	Louisiana.....	3
Ohio.....	11	Maryland.....	2
Hookworm disease.		New York.....	6
Louisiana.....	15	Ohio.....	3
Impetigo contagiosa		Trachoma	
Maryland.....	10	Minnesota.....	1
Oregon.....	13	New York.....	1
Lead poisoning.		Ohio.....	2
Ohio.....	28	Tennessee.....	21
Lethargic encephalitis		Trichinosis.	
Alabama.....	2	Ohio.....	1
Louisiana.....	3	Tularaemia	
Maryland.....	1	Louisiana.....	3
Minnesota.....	1	Maryland.....	15
New York.....	24	Ohio.....	25
Ohio.....	2	Tennessee.....	21
Oregon.....	1	Typhus fever	
Mumps		Alabama.....	6
Alabama.....	21	New York.....	1
Louisiana.....	2	Tennessee.....	1
Maine.....	125	Undulant fever	
Maryland.....	46	Alabama.....	1
New York.....	1,204	Louisiana.....	1
Ohio.....	369	Maryland.....	1
Oregon.....	63	Minnesota.....	3
Tennessee.....	12	New York.....	17
Vermont.....	7	Ohio.....	3
Wyoming.....	15	Wyoming.....	1
Ophthalmia neonatorum		Vincent's angina.	
New York.....	1	Maine.....	6
Ohio.....	88	Maryland.....	3
Paratyphoid fever		New York.....	75
Louisiana.....	1	Oregon.....	2
Maine.....	1	Tennessee.....	6
New York.....	1	Wyoming.....	3
Tennessee.....	3	Whooping cough	
Puerperal fever		Alabama.....	97
New York.....	12	Louisiana.....	8
Ohio.....	6	Maine.....	96
Tennessee.....	1	Maryland.....	161
Rabies in animals.		Minnesota.....	216
Louisiana.....	3	New York.....	1,232
Maryland.....	6	Ohio.....	615
New York.....	5	Oregon.....	42
Oregon.....	1	Tennessee.....	77
Rabies in man.		Vermont.....	93
Ohio.....	2	Wyoming.....	7

RECIPROCAL NOTIFICATIONS

Notifications regarding communicable diseases sent during the month of December, 1929, by departments of health of certain States to other State health departments

Disease	California	Illinois	Kansas	Minnesota	New York
Diphtheria.....					1
Measles.....					1
Meningococcus meningitis.....	1			1	
Smallpox.....		3			
Syphilis.....			1		
Tuberculosis.....		16		13	
Typhoid fever.....	1			4	3
Undulant fever.....				1	

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 97 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 31,485,000. The estimated population of the 89 cities reporting deaths is more than 29,670,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended January 11, 1930, and January 13, 1929

	1930	1929	Estimated expectancy
<i>Cases reported</i>			
Diphtheria:			
46 States.....	1,749	1,774	
97 cities.....	717	828	1,076
Measles:			
43 States.....	5,180	6,094	
97 cities.....	881	1,422	
Meningococcus meningitis:			
46 States.....	252	214	
97 cities.....	100	123	
Poliomyelitis:			
46 States.....	17	16	
Scarlet fever:			
46 States.....	4,943	3,728	
97 cities.....	1,656	1,311	1,438
Smallpox:			
46 States.....	1,660	737	
97 cities.....	177	32	50
Typhoid fever:			
46 States.....	164	107	
97 cities.....	20	22	41
<i>Deaths reported</i>			
Influenza and pneumonia:			
89 cities.....	1,075	3,719	
Smallpox:			
89 cities.....	0	0	

City reports for week ended January 11, 1930

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during non-epidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1921 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND								
Maine								
Portland	32	1	0		0	0	2	6
New Hampshire								
Concord	0	0	0		0	0	0	1
Manchester	0	1	0		0	0	0	2
Nashua	0	0	0		0	0	0	0
Vermont								
Barre	5	0	0		0	2	0	0
Burlington	7	0	1		0	0	0	2
Massachusetts								
Boston	92	40	42	2	0	27	66	34
Fall River	14	5	1		0	1	0	4
Springfield	28	5	6	1	0	1	7	3
Worcester	40	5	2		0	19	0	3
Rhode Island								
Pawtucket	25	2	3		0	0	0	2
Providence	6	11	12		0	0	0	9
Connecticut								
Bridgeport	8	7	2	3	0	0	0	5
Hartford	20	8	2	2	0	0	5	4
New Haven	53	1	0		0	0	17	5
MIDDLE ATLANTIC								
New York								
Buffalo	37	16	7		0	4	5	25
New York	279	221	123	34	15	69	92	227
Rochester	23	10	0		0	7	2	7
Syracuse	85	5	0		0	0	74	11
New Jersey								
Camden	2	7	8		0	0	0	3
Newark	123	21	39	6	1	63	14	17
Trenton	1	4	0		0	17	0	5
Pennsylvania								
Philadelphia	195	80	40	9	7	18	35	64
Pittsburgh	38	24	18		6	63	9	30
Reading	24	3	1		0	2	0	5
Scranton	1	5	1		0	0	0	0
EAST NORTH CENTRAL								
Ohio								
Cincinnati	26	13	8		1	2	0	14
Cleveland	167	39	15	11	1	6	13	13
Columbus	20	6	2	1	1	6	2	5
Toledo	112	11	2	1	1	311	4	10
Indiana								
Fort Wayne	6	5	2		0	0	0	4
Indianapolis	33	10	3		0	21	0	15
South Bend	0	1	1		0	0	0	6
Terre Haute	3	2	1		0	0	0	4
Illinois								
Chicago	149	112	118	13	9	13	45	73
Springfield	7	1	0	1	1	1	0	3

City reports for week ended January 11, 1930—Continued

Division, State, and city	Chick- en pov, cases re- ported	Diphtheria		Influenza		Meas- les, cases re- ported	Mumps, cases re- ported	Pneu- monia, deaths re- ported
		Cases, esti- mated expect- ancy	Cases re- ported	Cases re- ported	Deaths re- ported			
EAST NORTH CENTRAL—CON.								
Michigan:								
Detroit.....	94	63	52	3	4	169	45	45
Flint.....	27	6	1	—	0	0	0	1
Grand Rapids.....	6	2	1	—	1	1	0	4
Wisconsin:								
Kenosha.....	13	3	0	—	0	0	0	0
Milwaukee.....	203	22	4	2	2	3	42	7
Racine.....	17	2	1	—	0	2	1	0
Superior.....	1	1	0	—	0	21	0	1
WEST NORTH CENTRAL								
Minnesota:								
Duluth.....	4	2	0	—	1	21	0	1
Minneapolis.....	188	23	9	—	5	35	51	18
St. Paul.....	34	12	0	—	2	4	6	6
Iowa:								
Davenport.....	1	1	0	—	0	0	0	0
Des Moines.....	4	3	0	—	0	19	0	0
Sioux City.....	12	1	0	—	—	1	2	—
Waterloo.....	18	0	2	—	—	62	0	—
Missouri:								
Kansas City.....	24	8	5	—	1	3	0	16
St. Joseph.....	5	2	0	—	0	0	0	3
St. Louis.....	19	48	27	8	—	1	7	—
North Dakota:								
Fargo.....	6	0	0	—	0	1	6	0
Grand Forks.....	1	0	0	—	0	0	0	0
South Dakota:								
Aberdeen.....	22	0	0	—	0	0	3	0
Sioux Falls.....	0	1	0	—	0	8	0	0
Nebraska:								
Omaha.....	17	5	20	—	—	22	2	—
Kansas:								
Topeka.....	35	2	1	2	1	6	10	2
Wichita.....	15	4	1	—	0	1	0	5
SOUTH ATLANTIC								
Delaware:								
Wilmington.....	13	3	2	—	0	0	0	5
Maryland:								
Baltimore.....	91	31	15	25	4	4	11	28
Cumberland.....	0	1	0	—	0	0	0	1
Frederick.....	0	0	0	—	0	0	0	1
District of Columbia:								
Washington.....	31	21	8	2	2	1	0	14
Virginia:								
Lynchburg.....	11	1	2	—	0	57	11	6
Norfolk.....	3	3	1	—	0	0	17	9
Richmond.....	0	7	5	—	2	0	3	3
Roanoke.....	3	2	3	—	0	0	0	2
West Virginia:								
Charleston.....	20	2	0	2	0	0	0	2
Wheeling.....	3	1	1	—	0	0	0	2
North Carolina:								
Raleigh.....	4	1	2	—	1	0	0	2
Wilmington.....	4	1	1	—	0	0	0	3
Winston-Salem.....	8	2	1	—	1	0	30	5
South Carolina:								
Charleston.....	0	1	1	47	2	0	3	4
Columbia.....	9	1	1	—	0	2	4	0
Georgia:								
Atlanta.....	9	4	1	38	4	0	8	13
Brunswick.....	0	0	0	—	0	0	1	0
Savannah.....	0	2	1	—	0	0	0	5
Florida:								
Miami.....	0	2	3	—	0	2	0	3
St. Petersburg.....	0	0	0	—	0	0	0	2
Tampa.....	11	2	1	1	1	0	5	0

City reports for week ended January 11, 1930—Continued

Division, State, and city	Chicken pox, cases re-reported	Diphtheria		Influenza		Measles, cases re-reported	Mumps, cases re-reported	Pneumonia, deaths re-reported
		Cases, estimated expectancy	Cases re-reported	Cases re-reported	Deaths re-reported			
EAST SOUTH CENTRAL								
Kentucky:								
Covington.....	0	1	0		0	0	0	0
Tennessee:								
Memphis.....	12	6	4		4	1	8	6
Nashville.....		3	3	3	3	1		7
Alabama:								
Birmingham.....	9	4	3	29	2	0	2	2
Mobile.....	3	1	1	2	0	0	0	4
Montgomery.....	12	0	1			0	0	
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith.....	7	0	0			0	0	
Little Rock.....	9	1	0		0	0	1	4
Louisiana:								
New Orleans.....	3	13	19	8	6	26	0	23
Shreveport.....	2	2	0		0	0	3	7
Oklahoma:								
Oklahoma City.....	5	2	4	5	1	8	0	2
Texas:								
Dallas.....	17	9	14	6	5	57	1	5
Fort Worth.....	9	4	2		2	0	1	3
Galveston.....	0	2	0		0	0	0	0
Houston.....	2	7	9		1	1	0	7
San Antonio.....	0	3	2		4	0	0	7
MOUNTAIN								
Montana:								
Billings.....	1	0	1		0	0	15	1
Great Falls.....	5	0	0		0	1	39	3
Helena.....	0	0	0		0	0	72	0
Missoula.....	0	0	0	1	1	0	2	0
Idaho:								
Boise.....	5	0	0		0	0	0	0
Colorado:								
Denver.....	46	11	6		1	8	13	12
Pueblo.....	18	2	0		0	0	34	1
New Mexico:								
Albuquerque.....	3	0	1		0	0	7	2
Arizona:								
Phoenix.....	2	0	3		1	0	3	4
Utah:								
Salt Lake City.....	61	4	1		0	5	9	9
Nevada:								
Reno.....	0	0	0		0	0	0	0
PACIFIC								
Washington:								
Seattle.....	72	4	0			4	38	
Spokane.....	25	2	2	4		0	0	
Tacoma.....	26	3	4		1	0	1	5
Oregon:								
Portland.....	22	12	3	5	2	1	12	7
Salem.....	2	0	0		0	0	7	0
California:								
Los Angeles.....	78	43	18	21	3	9	22	39
Sacramento.....	16	3	4		0	3	36	
San Francisco.....		19						

City reports for week ended January 11, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
NEW ENGLAND											
Maine:											
Portland	3	6	0	0	0	2	1	0	0	0	33
New Hampshire:											
Concord	0	2	0	0	0	1	0	0	0	0	15
Manchester	2	2	0	0	0	0	0	0	0	0	14
Nashua	0	0	0	0	0	0	0	0	0	0	0
Vermont:											
Barre	0	0	0	0	0	0	0	0	0	0	1
Burlington	2	0	0	0	0	0	0	0	0	0	4
Massachusetts:											
Boston	78	75	0	0	0	6	0	0	0	80	282
Fall River	3	6	0	0	0	0	1	0	0	0	25
Springfield	9	14	0	0	0	0	0	0	0	34	37
Worcester	12	22	0	0	0	2	0	0	0	28	45
Rhode Island:											
Pawtucket	2	3	0	0	0	0	0	0	0	2	20
Providence	11	24	0	0	0	6	1	0	0	17	77
Connecticut:											
Bridgeport	10	17	0	0	0	0	0	0	0	2	43
Hartford	8	4	0	0	0	2	0	0	0	0	32
New Haven	8	5	0	0	0	1	0	0	0	22	44
MIDDLE ATLANTIC											
New York:											
Buffalo	27	21	0	0	0	4	0	0	0	9	158
New York	250	198	0	0	0	93	9	3	0	71	1,575
Rochester	13	3	0	0	0	2	1	0	0	4	61
Syracuse	13	33	0	0	0	2	1	0	0	30	56
New Jersey:											
Camden	7	2	0	0	0	2	1	0	0	1	41
Newark	29	32	0	0	0	7	1	0	0	20	130
Trenton	5	28	0	0	0	6	0	0	0	3	49
Pennsylvania:											
Philadelphia	98	134	1	0	0	41	3	3	0	31	468
Pittsburgh	40	25	0	0	0	12	1	1	1	23	200
Reading	4	9	0	0	0	0	0	0	0	25	35
Scranton	4	1	0	0	0	0	0	0	0	1	0
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	20	26	1	2	0	9	0	0	0	6	134
Cleveland	45	51	0	0	0	11	1	0	0	98	196
Columbus	11	9	1	3	0	1	0	1	0	3	71
Toledo	15	17	0	5	0	4	1	0	0	5	82
Indiana:											
Fort Wayne	6	0	0	12	0	0	0	0	0	7	30
Indianapolis	12	12	7	1	0	6	1	0	0	5	128
South Bend	3	0	0	1	0	1	0	0	0	0	-----
Terre Haute	3	1	0	0	0	2	0	0	0	0	28
Illinois:											
Chicago	134	282	1	4	0	38	3	1	1	105	768
Springfield	4	1	0	1	0	0	0	0	0	1	25
Michigan:											
Detroit	103	120	2	14	0	25	1	0	0	60	304
Flint	13	9	1	5	0	4	0	0	0	10	27
Grand Rapids	14	8	0	1	0	1	0	0	0	6	32
Wisconsin:											
Kenosha	2	6	1	0	0	0	0	0	0	11	5
Milwaukee	37	20	1	0	0	5	1	0	0	55	114
Racine	6	4	0	0	0	0	0	1	0	12	10
Superior	3	6	0	0	0	1	0	0	0	0	14
WEST NORTH CENTRAL											
Minnesota:											
Duluth	11	4	0	0	0	3	0	0	0	1	22
Minneapolis	60	17	4	0	0	3	1	0	0	9	112
St. Paul	32	19	1	0	0	4	0	0	0	8	63
Iowa:											
Davenport	2	0	1	9	-----	-----	0	0	-----	0	-----
Des Moines	10	10	2	18	-----	-----	0	0	-----	0	43
Sioux City	2	1	0	0	-----	-----	0	0	-----	0	-----
Waterloo	2	2	0	20	-----	-----	0	0	-----	0	-----

City reports for week ended January 11, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culosis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases, re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
WEST NORTH CENTRAL--contd.											
Missouri:											
Kansas City....	15	23	1	0	0	6	0	0	0	7	104
St. Joseph.....	3	2	1	2	0	0	0	0	0	0	40
St. Louis.....	43	16	1	12	0	8	1	1	0	1	211
North Dakota:											
Fargo.....	2	7	0	3	0	1	0	0	0	1	5
Grand Forks.....	0	0	0	3			0	0		0	
South Dakota:											
Aberdeen.....	0	1	0	0			0	0		6	
Sioux Falls.....	2	0	0	17			0	0		0	3
Nebraska:											
Omaha.....	5	6	2	5			0	0		0	
Kansas:											
Topeka.....	3	3	0	1	0	0	0	0	0	10	17
Wichita ..	5	14	0	4	0	0	0	0	0	1	44
SOUTH ATLANTIC											
Delaware:											
Wilmington ..	6	10	0	0	0	1	0	0	0	0	34
Maryland:											
Baltimore ..	34	41	0	0	0	14	2	3	1	12	244
Cumberland....	1	4	0	0	0	0	0	1	0	0	17
Frederick.....	0	2	0	0	0	0	0	0	0	2	6
District of Colum- bia											
Washington....	26	19	1	0	0	6	1	0	0	10	143
Virginia:											
Lynchburg.....	1	2	0	0	0	1	0	0	0	8	21
Norfolk.....	2	2	0	0	0	0	0	0	0	6	
Richmond.....	5	11	0	0	0	4	0	0	0	0	54
Roanoke.....	2	0	0	0	0	0	1	0	0	0	12
West Virginia:											
Charleston ..	1	0	0	0	0	0	0	0	0	14	9
Wheeling.....	2	0	0	0	0	1	1	0	0	12	20
North Carolina:											
Raleigh.....	1	1	1	0	0	0	0	0	0	3	21
Wilmington....	1	0	0	0	0	0	0	0	0	3	17
Winston-Salem..	2	4	1	0	0	1	0	0	0	3	32
South Carolina:											
Charleston ..	1	0	1	0	0	1	0	0	0	1	34
Columbia.....	0	0	0	0	0	1	0	0	0	14	9
Georgia:											
Atlanta.....	6	7	2	0	0	4	0	1	1	3	83
Brunswick.....	0	0	0	0	0	0	0	0	0	0	5
Savannah.....	1	6	0	0	0	2	0	0	0	0	46
Florida:											
Miami.....	2	5	0	0	0	0	1	0	0	3	21
St. Petersburg..	0		0		0	1	0		0		23
Tampa.....	1	2	0	0	0	0	1	0	1	4	20
EAST SOUTH CENTRAL											
Kentucky:											
Covington....	2	0	0	0	0	0	0	0	0	0	34
Tennessee:											
Memphis.....	7	5	1	1	0	5	0	1	0	0	73
Nashville.....	2	1	0	0	0	0	0	0	0	0	
Alabama:											
Birmingham...	4	6	3	0	0	2	0	0	0	4	50
Mobile.....	1	3	0	0	0	1	0	0	0	0	19
Montgomery....	0	1	0	0			0	0		0	
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith....	1	3	0	0			0	0		0	
Little Rock....	2	1	0	3		1	1	0	0	0	
Louisiana:											
New Orleans....	6	15	1	0	0	10	3	1	0	0	173
Shreveport....	1	0	1	1	0	1	0	0	0	0	82

City reports for week ended January 11, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
WEST SOUTH CENTRAL—contd.											
Oklahoma. Oklahoma City.....	3	6	1	8	0	2	1	0	0	0	36
Texas.....											
Dallas.....	5	9	1	0	0	1	1	0	0	0	55
Fort Worth.....	3	1	2	5	0	2	0	0	0	0	38
Galveston.....	2	1	0	0	0	3	0	0	0	0	19
Houston.....	3	2	1	4	0	5	0	0	0	0	59
San Antonio.....	2	0	0	3	0	8	0	0	0	0	75
MOUNTAIN											
Montana:											
Billings.....	2	8	0	0	0	0	0	0	0	0	8
Great Falls.....	2	18	0	0	0	0	0	0	0	1	9
Helena.....	1	0	0	0	0	0	0	0	0	4	1
Missoula.....	1	2	0	3	0	1	0	0	0	0	8
Idaho:											
Boise.....	1	0	0	1	0	0	0	0	0	0	15
Colorado.....											
Denver.....	10	19	1	1	0	8	0	0	1	6	79
Pueblo.....	3	0	0	0	0	0	0	0	0	0	9
New Mexico.....											
Albuquerque.....	1	0	0	0	0	4	0	0	0	0	12
Arizona.....											
Phoenix.....	1	0	0	10	0	1	0	0	0	0	19
Utah:											
Salt Lake City.....	4	7	3	0	0	1	0	0	0	16	36
Nevada.....											
Reno.....	0	2	0	0	0	0	0	0	0	0	2
PACIFIC											
Washington.....											
Seattle.....	9	9	3	3			0	0		13	
Spokane.....	8	1	4	43			0	0		5	
Tacoma.....	3	5	3	9	0	0	0	0	0	6	24
Oregon.....											
Portland.....	6	3	12	4	0	3	0	2	1	2	85
Salem.....	0	0	1	0	0	0	0	0	0	0	
California.....											
Los Angeles.....	33	73	4	6	0	23	1	2	1	19	313
Sacramento.....	2	15	0	8	0	1	0	0	0	0	37
San Francisco.....	17		2				1				

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Polymyositis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, esti- mated expect- ancy	Cases	Deaths
NEW ENGLAND									
Massachusetts.									
Boston.....	1	1	0	0	1	0	1	0	0
Connecticut.....									
Hartford.....	0	0	0	1	0	0	0	0	0
MIDDLE ATLANTIC									
New York.....									
New York.....	13	3	2	2	0	0	1	0	0
New Jersey.....									
Newark.....	5	0	0	0	0	0	0	0	0
Pennsylvania.....									
Philadelphia.....	2	2	0	0	0	0	0	0	0
Pittsburgh.....	3	3	0	1	0	0	0	0	0

City reports for week ended January 11, 1930—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
EAST NORTH CENTRAL									
Ohio:									
Cleveland.....	6	1	0	0	0	0	0	0	0
Toledo.....	1	0	0	0	0	0	0	0	0
Indiana:									
Indianapolis.....	10	7	0	0	0	0	0	0	0
South Bend.....	2	2	0	0	0	0	0	0	0
Terre Haute.....	1	1	0	0	0	0	0	0	0
Illinois:									
Chicago.....	6	4	0	1	0	0	0	1	0
Springfield.....	1	0	0	0	0	0	0	0	0
Michigan:									
Detroit.....	23	9	0	0	1	0	0	1	0
WEST SOUTH CENTRAL									
Missouri:									
Kansas City.....	1	1	0	0	0	0	0	0	0
St. Joseph.....	0	1	0	0	0	0	0	0	0
St. Louis.....	4	2	0	0	0	0	0	0	0
North Dakota:									
Fargo.....	0	0	1	0	0	0	0	0	0
Nebraska:									
Omaha.....	5	0	0	0	0	0	0	0	0
Kansas:									
Topeka.....	1	1	0	0	0	0	0	0	0
SOUTH ATLANTIC									
Maryland:									
Baltimore.....	1	0	0	0	0	0	0	0	0
Virginia:									
Lynchburg.....	0	0	0	0	0	1	0	0	0
North Carolina:									
Winston-Salem.....	0	0	0	0	0	1	0	0	0
South Carolina:									
Charleston.....	0	0	0	0	2	1	0	0	0
Columbia.....	0	1	0	0	0	1	0	0	0
Georgia:									
Atlanta.....	2	2	0	0	0	0	0	0	0
Savannah.....	0	0	0	0	0	3	0	0	0
EAST SOUTH CENTRAL									
Kentucky:									
Covington.....	1	1	0	0	0	0	0	0	0
Tennessee:									
Memphis.....	3	0	0	0	0	0	0	0	0
Nashville.....	1	0	0	0	0	0	0	0	0
Alabama:									
Birmingham.....	0	0	0	0	1	0	0	1	0
WEST SOUTH CENTRAL									
Arkansas:									
Little Rock.....	0	0	0	0	0	1	0	0	0
Louisiana:									
New Orleans.....	3	4	0	0	0	0	0	0	0
Shreveport.....	0	1	0	0	0	0	0	0	0
Oklahoma:									
Oklahoma City.....	1	0	0	0	0	0	0	0	0
MOUNTAIN									
Colorado:									
Denver.....	1	0	0	0	0	0	0	0	0
Arizona:									
Phoenix.....	1	0	0	0	0	0	0	0	0
Utah:									
Salt Lake City.....	4	1	0	0	0	0	0	0	0
PACIFIC									
California:									
Los Angeles.....	2	3	0	0	0	0	1	1	2

The following table gives the rates per 100,000 population for 98 cities for the 5-week period ended January 11, 1930, compared with those for a like period ended January 12, 1929. The population figures used in computing the rates are approximate estimates, authoritative figures for many of the cities not being available. The 98 cities reporting cases have an estimated aggregate population of more than 32,000,000. The 91 cities reporting deaths have nearly 30,500,000 estimate¹ population.

*Summary of weekly reports from cities, December 8, 1929, to January 11, 1930—
Annual rates per 100,000 population, compared with rates for the corresponding
period of 1928-29*¹

DIPHTHERIA CASE RATES

	Week ended—									
	Dec. 14, 1929	Dec. 15, 1928	Dec. 21, 1929	Dec. 22, 1928	Dec. 28, 1929	Dec. 29, 1928	Jan. 4, 1930	Jan. 5, 1929	Jan. 11, 1930	Jan. 12, 1929
98 cities.....	134	159	129	146	² 120	133	³ 117	148	⁴ 119	139
New England.....	118	216	170	159	² 125	170	136	163	156	183
Middle Atlantic.....	112	139	106	146	113	156	86	178	113	157
East North Central.....	170	208	167	166	166	133	³ 159	153	130	124
West North Central.....	148	149	110	139	67	119	111	161	123	158
South Atlantic.....	107	140	107	122	79	105	86	111	83	118
East South Central.....	136	98	122	133	109	105	112	88	79	190
West South Central.....	304	151	133	191	178	174	101	111	170	119
Mountain.....	61	18	61	71	35	18	52	70	69	87
Pacific.....	60	61	57	95	85	43	1.0	60	⁴ 95	67

MEASLES CASE RATES

98 cities.....	113	183	110	179	² 92	161	³ 130	196	⁴ 116	215
New England.....	86	837	93	800	² 98	676	125	964	112	873
Middle Atlantic.....	47	91	59	68	51	77	76	80	116	94
East North Central.....	133	194	94	251	97	206	³ 118	230	153	315
West North Central.....	202	272	210	225	146	201	277	198	303	394
South Atlantic.....	28	88	59	52	30	73	132	114	118	66
East South Central.....	14	0	0	28	0	0	7	14	13	7
West South Central.....	63	12	138	12	91	4	101	24	325	43
Mountain.....	104	257	139	204	78	106	197	383	146	427
Pacific.....	479	64	431	49	337	84	315	40	⁴ 54	115

SCARLET FEVER CASE RATES

98 cities.....	276	203	250	184	² 217	183	³ 250	195	⁴ 274	221
New England.....	378	251	312	211	² 314	308	377	296	397	317
Middle Atlantic.....	172	143	176	115	164	138	186	148	232	190
East North Central.....	438	290	354	233	311	220	³ 344	239	352	251
West North Central.....	271	252	235	241	179	262	248	258	216	283
South Atlantic.....	193	163	253	166	141	132	186	154	201	124
East South Central.....	88	168	48	154	75	182	125	197	106	156
West South Central.....	142	174	163	101	126	162	69	142	120	182
Mountain.....	322	62	583	27	322	27	378	113	481	157
Pacific.....	352	182	252	197	251	151	271	185	⁴ 348	282

¹ The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1930, 1929, and 1928, respectively.

² Hartford, Conn., not included.

³ South Bend, Ind., and Racine, Wis., not included.

⁴ San Francisco, Calif., not included.

Summary of weekly reports from cities, December 8, 1929, to January 11, 1930—
Annual rates per 100,000 population compared with rates for the corresponding
period of 1928-29—Continued

SMALLPOX CASE RATES

	Week ended—									
	Dec 14, 1929	Dec. 15, 1928	Dec. 21, 1929	Dec. 22, 1928	Dec 28, 1929	Dec. 29, 1928	Jan. 4, 1930	Jan. 5, 1929	Jan. 11, 1930	Jan. 12, 1929
98 cities.....	23	8	23	8	² 18	4	² 20	3	⁴ 29	5
New England.....	2	0	0	2	² 0	2	0	0	0	2
Middle Atlantic.....	0	0	0	0	0	0	0	1	0	0
East North Central.....	29	16	31	4	20	3	² 16	6	27	3
West North Central.....	56	0	60	6	58	10	80	2	89	6
South Atlantic.....	0	2	0	0	2	2	2	0	0	2
East South Central.....	0	7	7	0	7	7	0	7	7	41
West South Central.....	36	24	36	41	28	12	15	4	43	16
Mountain.....	78	44	52	44	44	35	52	35	43	78
Pacific.....	122	20	117	56	80	15	107	5	⁴ 233	7

TYPHOID FEVER CASE RATES

	6	5	5	4	² 4	5	² 2	4	⁴ 3	4
98 cities.....	7	7	0	2	² 0	2	2	5	0	2
New England.....	6	4	4	4	3	4	1	2	3	4
Middle Atlantic.....	3	1	3	1	1	5	-2	3	2	1
East North Central.....	6	4	8	2	2	6	0	0	2	0
West North Central.....	7	6	4	8	9	6	6	9	9	4
South Atlantic.....	14	21	0	7	34	7	7	0	7	7
East South Central.....	8	16	40	8	8	8	0	4	4	28
West South Central.....	9	9	17	9	0	9	9	9	0	0
Mountain.....	7	8	2	10	10	8	10	7	⁴ 7	0
Pacific.....										

INFLUENZA DEATH RATES

91 cities.....	16	80	19	118	² 19	180	² 17	234	² 19	241
New England.....	7	9	9	14	² 10	14	7	48	0	100
Middle Atlantic.....	9	27	18	66	13	129	10	165	14	161
East North Central.....	15	14	14	124	13	201	³ 15	238	12	236
West North Central.....	12	174	15	220	15	254	27	240	⁶ 34	165
South Atlantic.....	19	101	13	131	26	281	18	343	31	395
East South Central.....	59	100	52	77	30	268	29	970	65	1,592
West South Central.....	81	96	69	212	97	379	79	596	64	467
Mountain.....	0	735	26	594	26	266	17	218	43	165
Pacific.....	20	317	30	212	20	182	13	134	⁴ 20	79

PNEUMONIA DEATH RATES

91 cities.....	151	202	159	250	² 144	315	² 170	383	² 170	408
New England.....	136	105	158	159	² 96	159	163	201	170	323
Middle Atlantic.....	156	190	165	247	155	294	181	395	192	443
East North Central.....	115	171	117	255	116	382	² 113	466	122	414
West North Central.....	174	318	180	444	174	364	195	216	⁶ 173	285
South Atlantic.....	191	271	184	228	152	344	221	360	177	485
East South Central.....	215	199	215	207	193	261	251	533	136	659
West South Central.....	239	182	243	254	243	408	329	670	210	528
Mountain.....	192	629	235	390	209	363	180	174	223	200
Pacific.....	111	222	144	169	108	169	118	148	⁴ 232	134

² Hartford, Conn., not included.

³ South Bend, Ind., and Racine, Wis., not included.

⁴ San Francisco, Calif., not included.

⁵ Omaha, Nebr., and San Francisco, Calif., not included.

⁶ Omaha, Nebr., not included.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Week ended January 4, 1930.—The Department of Pensions and National Health reports cases of certain communicable diseases in Canada for the week ended January 4, 1930, as follows:

Province	Cerebro-spinal fever	Influenza	Smallpox	Typhoid fever
Prince Edward Island ¹				
Nova Scotia.....		6		2
New Brunswick.....				2
Quebec.....	1			7
Ontario.....	2	6	15	
Manitoba.....			3	
Saskatchewan.....			12	
Alberta.....			7	
British Columbia.....	2		7	
Total.....	5	12	41	11

¹ No case of any disease included in the table was reported for the week.

Quebec Province—Communicable diseases—Week ended January 11, 1930.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended January 11, 1930, as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis.....	3	Mumps.....	87
Chicken pox.....	133	Scarlet fever.....	184
Diphtheria.....	77	Tuberculosis.....	41
German measles.....	4	Typhoid fever.....	5
Influenza.....	11	Whooping cough.....	128
Measles.....	159		

CHINA

Meningitis.—During the week ended January 4, 1930, 10 cases of meningitis, with 10 deaths were reported at Canton, China.

JAMAICA

Communicable diseases—Four weeks ended January 4, 1930.—During the four weeks ended January 4, 1930, cases of certain communicable diseases were reported in Kingston, Jamaica, and in the island of Jamaica outside of Kingston, as follows:

Disease	Kingston	Other localities	Disease	Kingston	Other localities
Cerebrospinal meningitis.....		1	Paratyphoid fever.....		1
Chicken pox.....		3	Puerperal fever.....		1
Dysentery.....	3	6	Scarlet fever.....		4
Erysipelas.....	1		Tuberculosis.....	53	51
Leprosy.....	1	3	Typhoid fever.....	10	56

VIRGIN ISLANDS

Communicable diseases—December, 1929.—During the month of December, 1929, cases of certain communicable diseases were reported in the Virgin Islands as follows:

St. Thomas and St. John:

Dysentery.....	1
Gonorrhea.....	3
Syphilis.....	7

St. Croix:

Gonorrhea.....	3
Leprosy.....	1
Syphilis.....	10
Tuberculosis.....	1
Uncinariasis.....	2

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Place	July, 1929	August, 1929	Septem- ber, 1929	October, 1929			November, 1929			December, 1929		
				1-10	11-20	21-31	1-10	11-20	21-30	1-10	11-20	11-30
India (French):												
Chandernagor.....	2	1	1	3	1	1	2	1	2	10	1	
Karikal.....	2	1					1		4	4	3	
Pondicherry Province.....				3					2			P
India (Portuguese).....				3					1	2		
Indo-China (see also table below):				1								
Phnompenh.....	7	3	61	28	8		7		1	2	1	
Saigon and Cholon.....	5	3	53	20	4		4			2	2	
	9	2		1						1		
	14	2										
Japan.....												
Kobe.....		2	9	34								
Osaka.....		5	41	14								
Shimonoseki.....		P										
Siam.....	571	180	26	9					2			
	202	112	19	4					1			
	4	10										
Anthoang.....	18	2		2								
Ayudhya.....	11	9	10	4					2			
Bangkok.....	1	3	5	2						3	1	3
Dhannapuri.....				2								
Lobpuri.....		2	3									
Nagara Rajstima.....	57	2	3									
Smud Songram.....	29	5		2								
	3			3								
Sridharmaraj Province ¹		15										
		13										
On vessel:												
S. S. Cap. St. Jacques, from Saigon-Cholon.....	P											
S. S. Shinsei, at Shanghai.....												
S. S. Texas Mari, at Nagasaki.....		3										
Indo-China (French) (see also table above):												
Annam.....	C	9	17	1								
Cambodia.....	C	186	35	38							2	
Cochin-China.....	C	315	60	45		100					43	41
Laos.....	C	13	3	12		3					15	46

¹ There were 98 cases of cholera with 16 deaths in Nagara Sridharmaraj Province, Siam, from May 16 to July 7, 1929.

Dutch East Indies: Java—	69	122	180	131	61	66	62	77	89	96								
Batavia and West Java.	68	121	178	128	60	65	61	70	86	97								
Plague-infected rats.																		
Celebes—Makassar.																		
Plague-infected rodents.																		
East Java and Madura.	3	3	7	60	35	3	1	3	20									2
Surabaya.	11	3	7	4	36	3		3	20									
Ecuador (see table below).																		
Egypt.																		
Alexandria.	7	5	11	13	4	4	2	1	1	1								2
Assiout.	3	1	5	3	3		1		1									1
Assuan.	4		1															
Behaira.	2																	
Beni Suef.	4	1	1				1	1										
Dakahlieh.	1		2															
Gharbieh.	9	1	2	5	4		1	1										1
Girga.	1	1		4														1
Kena.	3																	
Mennufieh Province.	2																	
Miniah.	2																	
Port Said.	3	6	2	2														
Suez.	1	6	3	1														
France: Paris.				1														
Greece (see also table below):																		
Messenia.			3	3			2	1										
Patras.			3				1											
Piraeus.																		
Pyrgos.																		
Hawaii. Hamakua—Kukuihaele—Plague-infected rats.																		
India.	1,812	4,221	6,326	8,334	2,291	1,938	2,079	1,857										
	1,059	2,295	3,354	4,395	1,132	1,053	1,066	1,123										
Bassein.	1	14	4															
Bombay.																		
Plague-infected rats.	23	10	28	32	6	3	10	12	11	9								
Madras Presidency.	97	215	186	139		27	68	57	91	18								
Rangoon.	52	112	107	64		14	32	34	36	42								
Plague-infected rats.	24	15	11	5		1	1	1	1	10								
	18	12	9	6		1	1	1	1	17								
	9	10	15	6	3		1	2	1	1								

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE--Continued

[C indicates cases; D, deaths; P, present]

[illegible]

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX

[C indicates cases; D, deaths; P, present]

Place	June 30- July 27, 1929	July 28- Aug. 24, 1929	Aug. 25- Sept. 21, 1929	Sept. 22- Oct. 19, 1929	Week ended—										January, 1930
					November, 1929					December, 1929					
					Oct. 28, 1929	2	9	16	23	30	7	14	21	28	4	11
Algeria:															
Algiers.....	C	7	1	1		1	1		3	1	1	1			
Oran.....	C	1													
Arabia: Aden.....	C	103	38	4	3	1			1	1	2			1	
Australia: Fremantle Quarantine Station.....	D	58	37	1					1						
Brazil: Porto Alegre.....	C	1													
British East Africa (see also table below):															
Tanganyika.....	C	3	2	2	2	3	2								
British South Africa:	D	10	5	9	3	1	7	18	15	6					
Northern Rhodesia.....	D			1				4	3						
Canada:															
Southern Rhodesia.....	D	73						2							
Northern Rhodesia.....	D	4													
Canada:															
Alberta.....	C	5		3	6			2							
Calgary.....	C		4	4	1	2	4	1	5		4	11	7	5	2
Edmonton.....	C		2	1	1										7
British Columbia—Vancouver.....	C		3	3	2	2	4	1	5		4	7	7	2	7
Manitoba.....	C	14	8	5	15	2	1	6	1	4	6	6	1	6	2
New Brunswick.....	C	1				1	1					6	2	3	
Ontario.....	C		2		1										
London.....	C	57	7	19	7	3	5	3	6	35	5	10	13	4	15
Niagara Falls.....	C														
North Bay.....	C														
Ottawa.....	C	7		3	7	1	5			1	1	1	1	4	3
Sarnia.....	C	1								2					
Toronto.....	C														
Windsor.....	C														
Prince Edward Island.....	C	2		3	1	1	1	1							
Quebec:															
Quebec.....	C	2	3	1	7	8	7	6	1	6	2		8		1
Riviere du Loup.....	C	2	1												2
Saskatchewan:															
Saskatoon.....	C		1	4	13	9	1	5	1	9	9	7	15	18	10
							6	2							12

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

[illegible]

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases, D, deaths; P, present]

Place	Week ended—																
	June 30– July 27, 1929	July 28– Aug. 24, 1929	Aug. 25– Sept. 21, 1929	Sept. 22– Oct. 19, 1929	November, 1929								December, 1929				January, 1930
					Oct. 1929												
					2	9	16	23	30	7	14	21	28	4	11		
Union of South Africa:																	
Cape Province.....	C			P	P	P	P	P	P	P	P						
Natal.....	C	P	P	P	P	P	P	P	P	P	P						
Transvaal.....	C	P	P	P	P	P	P	P	P	P	P						
Upper Volta.....	C			1													
On vessel.....																	
S. S. City of Hereford, at Brisbane, from Calcutta.....	C	1															
S. S. Karoo, at Zanzibar.....	C		1														
S. S. Talpiku, at Manila, from Australia.....	C			1													
S. S. Umvuma, at Cape Town, from London.....	C			5													
Belgian Congo.....	C																
Dahomey.....	D				725												
Indo-China (see also table above).....	C			19													
Ivory Coast.....	C			4								19	19	142			
Sudan (French).....	C			22	263							245					
Syria: Beirut.....	C			15	2							P		17			
	C			27	29							22	22	16	10	9	
	D			6								6			6	13	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER—Continued

[C indicates cases; D, deaths; P, present]

[illegible]

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===== SPECIAL ARTICLES =====

Blacktongue Preventive Value of Commercial Leached
Casein

Effect of Inhaling Siliceous Dust on Quiescent Tuberculous
Lesion



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HUGH S. CUMMING, *Surgeon General*

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Asst Surg. Gen. R. C. WILLIAMS, *Chief of Division*

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A Study of the Blacktongue Preventive Value of Leached Commercial Casein, together with a Test of the Blacktongue Preventive Action of a High Protein Diet

By JOSEPH GOLDBERGER¹ and G. A. WHEELER, *Surgeons*, L. M. ROGERS, *Passed Assistant Surgeon*, and W. H. SEBRELL, *Assistant Surgeon, United States Public Health Service*

In 1925 Goldberger and Tanner (1) reported a series of experiments designed to test the pellagra preventive action of casein. The results of these experiments indicated that the casein may have exerted a slight delaying effect on the recurrence of the disease (*pellagra sine pellagra*) and with three exceptions in 28 cases prevented or modified the occurrence of the dermatitis. This delaying effect indicated, when considered with the other experimental evidence, that the casein probably carried with it a small quantity of the P-P factor. In order to clear up this point a series of experiments was designed to determine whether or not leached commercial casein carried the P-P factor with it and at the same time whether a high protein diet would have any effect on the production of experimental blacktongue of dogs.

Goldberger and Wheeler (2) have reported the production in the dog, by feeding pellagra-producing diets, of a pathological condition known to American veterinarians as blacktongue. Denton (3) has reported that the pathological changes in blacktongue are analogous to those of pellagra. Goldberger, Wheeler, Lillie, and Rogers (4) have reported that, so far as they have been studied, foods containing the P-P factor also contain the blacktongue preventive, and foods deficient in the P-P factor are deficient in the blacktongue preventive. Goldberger, Wheeler, Lillie, and Rogers (4) (5) have further reported that blacktongue of dogs is most probably the analogue of pellagra in man and that the P-P factor and the blacktongue preventive are identical. This hypothesis has been recently further strengthened by Goldberger and Wheeler (6) so that it seems certain that experimental blacktongue and pellagra are essentially identical conditions,

¹ This study was organized prior to the death of Surgeon Goldberger on January 17, 1929, and was partly carried out under his direction. The manuscript was prepared by Assistant Surgeon W. H. Sebrell.

and that the preventive of blacktongue is identical with the pellagra preventive (factor P-P).

The general methods of caring for and feeding the experimental animals have already been described by Goldberger and his associates (2) (4) (5). It may be repeated here that the experimental diets are, as a rule, freshly prepared each day. The daily allowance of food, in general, is intended to be enough only for the maintenance of normal body weight. The same animals are used repeatedly, usually with intermediate feedings of stock diet for the purpose of reconditioning. The stock diet has been either our diet No. 156, the composition and adequacy of which have already been reported (2), or a modification in which pork liver replaces the beef of diet No. 156 and the bone meal is omitted (diet No. 326). The adequacy of the pork liver has been reported by Goldberger, Wheeler, Lillie, and Rogers (4).

Goldberger, Wheeler, Lillie, and Rogers (2) have already described the clinical course and diagnosis of the experimental disease in the dog. It may be recalled that the earliest buccal signs are a vivid red injection of the mucosa of the floor of the mouth or a bilaterally symmetrical reddened patch on the mucosa of the upper lip, or both. The first appearance of these mouth lesions has been considered as marking the beginning of the attack of blacktongue.

The casein used in all the experiments reported here was crude commercial casein obtained on the open market. The method of preparation is modified from the leaching process described by McCollum (7), and is as follows:

Twelve and one-half pounds of crude commercial casein previously ground in a ball mill are placed in a wooden tub and washed with thorough stirring in three changes of tap water. The tub is then filled to 75 liters with tap water and 150 cubic centimeters of glacial acetic acid is added. This is frequently stirred during the day and allowed to stand overnight. On the second day the water is poured off and the tub refilled to 75 liters with tap water and 140 cubic centimeters of glacial acetic acid is added. This is frequently stirred during the day and allowed to stand overnight. On the third, fourth, fifth, sixth, and seventh days the treatment is the same as on the second day. On the eighth day the casein is washed in three or more changes of tap water, until neutral to litmus. It is then drained, dried, and ground.

EXPERIMENT 1

Experiment 1 was a test of the basic diet No. 123 (Table 1) used by us for the experimental production of blacktongue. Goldberger, Wheeler, Lillie, and Rogers (5) have already reported that dogs fed this diet (and certain of its modifications) developed blacktongue within a period which only exceptionally exceeded about 60 days. However, as a control on the experiments herein reported it was considered advisable to repeat this work as a check on the preparation

of the food. Accordingly, suitable portions of this diet were offered daily to each of four test animals—dogs 60, 119, 152, and 153. The significant details relating to each of the test animals are as follows:

Dog 152.—Bitch. Acquired September 20, 1928, between which date and December 13, 1928, was on stock diet.

December 11, 1928: Weighs 8.7 kilos.

December 13: In good condition; begins test diet No. 123.

January 8, 1929: Weighs 8.4 kilos.

January 12: At the end of a period of 30 days presented first signs of an attack of blacktongue, an injection of the floor of the mouth.

April 27: Dead. Autopsy: Advanced blacktongue and fatty degeneration of liver and kidneys.

Dog 153.—Male. Acquired October 21, 1928, between which date and December 13, 1928, was on stock diet.

December 11, 1928: Weighs 8.5 kilos.

December 13: In good condition; begins test diet No. 123.

January 8, 1929: At the end of a period of 26 days presented first signs of attack of blacktongue, an injection of the floor of the mouth. Weighs 8.8 kilos.

Further history not relevant.

Dog 60.—Male. Whelped in the laboratory November 4, 1923, between which date and September 15, 1928, served in a number of experiments and suffered several attacks of blacktongue, the last of which began August 9, 1928.

September 15 to December 13, 1928: On stock diet

December 13: In good condition; weighs 8.3 kilos; begins test diet No. 123.

January 29, 1929: Weighs 7.7 kilos

February 2: At the end of a period of 51 days presented first signs of an attack of blacktongue, a reddened band-like lesion on mucosa of each side of the upper lip and an injection of the floor of the mouth

June 24: Dead. Autopsy: Blacktongue and fatty degeneration of liver and kidneys.

Dog 119.—Bitch. Acquired April 9, 1927, between which date and September 15, 1928, served in several experiments and suffered an attack of blacktongue which began on September 4, 1928

September 15 to December 13, 1928: On stock diet.

December 13: In good condition; weighs 11.2 kilos; begins test diet No. 123.

January 2, 1929 to February 7, 1929: Presented varying degrees of injection of the floor of the mouth, and evanescent reddened patches on the mucosa of each side of the upper lip; mouth returned to normal.

February 12: Weighs 11.4 kilos.

February 14: After a period of 63 days presented first signs of a definite attack of blacktongue, an injection of the floor of the mouth. Further history not relevant.

Summary.—All four of the test animals developed blacktongue in from 26 to 63 days, thus confirming the previously reported inadequacy of the basic diet. A detailed consideration of the significance of the fatty degenerations found at autopsy in two of the animals (dogs 153 and 60) will be the subject of a future paper.

EXPERIMENT 2

Experiment 2 was a test of our diet No. 323 (Table 2) which is identical with the basic diet No. 123 except that the casein is increased from 60 to 120 grams per 2,400 calorie ration. The cane sugar is eliminated and the cottonseed oil reduced in order to avoid unduly increasing the caloric value of the diet. Thus the diet differs essentially from basic diet No. 123 in that it contains twice the amount of casein. Suitable portions of this diet were offered daily to each of nine test animals—dogs 41, 149, 150, 130, 120, 73, 64, 118, and 119. The significant details relating to each of the test animals are as follows:

Dog 119.—Bitch. Acquired April 9, 1927, between which date and May 15, 1928, served in several experiments and suffered no attack of blacktongue. On stock diet from May 15 to June 26, 1928.

June 26, 1928: In good condition; weighs 10.7 kilos; begins test diet No. 323.

September 4: At the end of a period of 70 days presented first signs of an attack of blacktongue, an injection of the floor of the mouth and a bright red patch on the mucosa of the upper lip. Weighs 11 kilos. Further history not relevant.

Dog 149.—Bitch. Acquired September 20, 1928, between which date and December 13, 1928, was on stock diet.

December 11, 1928: Weighs 7 kilos.

December 13: In good condition; begins test diet No. 323.

March 19, 1929: Presented first injection of floor of mouth, which varied in intensity until March 23, when mouth returned to normal.

April 2: Weighs 6.5 kilos.

April 4: Presented first signs of an attack of blacktongue, an injection of floor of mouth, which began 115 days from the beginning of the experiment.

April 29: Dead. Autopsy: Advanced blacktongue and fatty degeneration of liver and kidneys.

Dog 150.—Male. Acquired September 20, 1928, between which date and December 13, 1928, was on stock diet.

December 11, 1928: Weighs 9 kilos.

December 13: In good condition; begins test diet No. 323.

February 2, 1929: Presented first injection of floor of mouth, which varied in intensity until February 17, 1929, at which date mouth returned to normal.

February 19: Weighs 8.5 kilos.

February 23: At the end of a period of 72 days presented first signs of an attack of blacktongue, an injection of the floor of the mouth and a reddened patch on the mucosa of each side of the upper lip.

Dog 130.—Bitch. Whelped in the laboratory June 28, 1927, between which date and December 13, 1928, was on a miscellaneous stock diet. Used for breeding and raised a litter of two females.

December 11, 1928: Weighs 7.5 kilos.

December 13: In good condition; begins test diet No. 323.

February 5, 1929, to March 30, 1929: Presented varying degrees of injection of the floor of the mouth. Mouth returned to normal on March 30.

April 2: Weighs 7.8 kilos.

April 4: At the end of a period of 112 days presented first signs of a definite attack of blacktongue, a faint reddened streak on the mucosa of the left side of upper lip, a row of small reddened patches on the mucosa of the right side of upper lip, diffuse injection of the floor of the mouth.

May 15: Dead. Autopsy: Blacktongue and fatty degeneration of liver and kidneys.

Dog 120.—Bitch. Acquired April 9, 1927, between which date and May 23, 1928, served in one experiment and suffered no attack of blacktongue. On a stock diet from May 23 to June 26, 1928.

June 26, 1928: In good condition; weighs 9.4 kilos; begins test diet No. 323.

November 13: Weighs 9.1 kilos.

November 17: At the end of a period of 144 days presented first signs of an attack of blacktongue, an injection of the floor of the mouth.

January 3, 1929: Found moribund and gassed. Autopsy: Blacktongue and fatty degeneration of liver and kidneys.

Dog 73.—Bitch. Acquired March 19, 1924, between which date and May 23, 1928, served in several experiments and suffered one attack of blacktongue, which began December 17, 1925. On a stock diet from May 23 to June 26, 1928.

June 26, 1928: In good condition; weighs 11.5 kilos; begins test diet No. 323.

February 2, 1929, to March 11, 1929: Presented varying degrees of injection of the floor of the mouth which finally subsided and the mouth returned to normal.

March 12: Weighs 8.5 kilos.

March 16: At the end of a period of 263 days presented first signs of an attack of blacktongue, an injection of the floor of the mouth.

March 31: Dead. Autopsy: Fatty degeneration of liver and kidneys.

Dog 64.—Bitch. Whelped in the laboratory November 4, 1923, between which date and May 23, 1928, served in a number of experiments and suffered two attacks of blacktongue, the latest of which began September 12, 1925. On a stock diet from May 23 to June 26, 1928.

June 26, 1928: In good condition; weighs 8.5 kilos; begins test diet No. 323.

August 14: Presented slight injection of the anterior portion of the floor of the mouth, which disappeared the next day.

August 28: Weighs 7.1 kilos.

August 30: At the end of a period of 65 days presented first signs of an attack of blacktongue, a faintly reddened bandlike lesion on the mucosa of each side of the upper lip and an injection of the floor of the mouth.

September 7: Moribund; gassed. Blacktongue.

Dog 41.—Bitch. Whelped in the laboratory June 26, 1923, between which date and May 15, 1928, served in a number of experiments and suffered several attacks of blacktongue, the latest of which began October 31, 1927. On a stock diet from May 15 to June 26, 1928.

June 26, 1928: In good condition; weighs 10.6 kilos; begins test diet No. 323.

October 9, 1928: At the end of a period of 105 days presented first signs of an attack of blacktongue, a reddened patch on the mucosa of each side of the upper lip, an injection of the floor of the mouth, and reddening of the mucosa of the cheeks. Weighs 10.1 kilos.

October 17 to December 13: On stock diet for reconditioning.

December 11: Weighs 10.3 kilos.

December 13: In good condition; begins test diet No. 323.

April 16, 1929: At the end of a period of 124 days presented first signs of an attack of blacktongue, an injection of the floor of the mouth and a diffuse reddening of the mucosa of each side of the upper lip. Weighs 10.3 kilos. Further history not relevant.

Dog 118.—Bitch. Acquired April 9, 1927, between which date and September 15, 1928, served in two experiments and suffered one attack of blacktongue which began on September 1, 1928.

September 15 to December 13, 1928: On stock diet.

December 11: Weighs 12 kilos.

December 13: In good condition; begins test diet No. 323.

April 2, 1929: Weighs 11.3 kilos.

April 6: At the end of a period of 114 days presented first signs of an attack of blacktongue, an injection of the floor of the mouth.

June 26: Dead. Autopsy: Advanced blacktongue and fatty degeneration of the liver and kidneys.

Summary—It is to be noted that five of the test animals (dogs 149, 130, 120, 73, and 118) presented fatty degeneration of the liver and kidneys at autopsy. A detailed consideration of the significance of this finding will be the subject of a future paper.

All of the test animals developed blacktongue in a period of from 65 to 263 days. One of the animals (dog 41) after developing an attack of blacktongue in 105 days was reconditioned on stock diet and returned to the experiment, again developing blacktongue in 124 days. It is apparent, then, that the onset of the attack of blacktongue is somewhat delayed as compared with the basic diet No. 123. Thus, it appears that the increase in the amount of casein exerted a delaying action. However, this experiment does not give any indication as to whether it was the additional protein per se which caused the delay in onset or whether the casein carried with it a small amount of the P-P factor which, though not sufficient to prevent the occurrence of blacktongue, was enough to delay the onset. In order to clear up this point, a further experiment was carried out as follows:

EXPERIMENT 3

Experiment No. 3 was a test of our diet No. 324, which contains 150 grams of casein per 2,400-calorie ration and is a modification of our diet No. 302, which Goldberger, Wheeler, Lillie, and Rogers (4) have reported has little or no blacktongue preventive value. It differs from diet No. 302 only in an increase in the casein and a decrease in the cottonseed oil. The essential difference from the basic diet No. 123 is the increase in casein and the removal of the cowpeas. Goldberger, Wheeler, Lillie, and Rogers (4) have shown that cowpeas contain a small quantity of the P-P factor. Thus, although the diet contains a larger amount of casein (150 grams per 2,400-calorie ration) than diet No. 323 and has a larger total protein content, the quantity of the P-P factor present in the basic ingredi-

ents has been reduced. Five test animals—dogs 117, 95, 70, 60, and 118—were offered suitable daily portions of this diet. The significant details relating to each of the test animals are as follows:

Dog 117.—Bitch. Acquired April 9, 1927, between which date and May 15, 1928, served in several experiments and suffered no attack of blacktongue. On stock diet from May 15 to June 26, 1928.

June 26, 1928: In good condition; weighs 11.7 kilos; begins test diet No. 324.

July 24: Weighs 12.1 kilos.

July 28: At the end of a period of 32 days presented first signs of an attack of blacktongue, an injection of the floor of the mouth. Further history not relevant.

Dog 95.—Male. Acquired November 30, 1925, between which date and May 15, 1928, served in two experiments and suffered no attack of blacktongue. On stock diet from May 15 to June 26, 1928.

June 26, 1928: In good condition; weighs 9.8 kilos; begins test diet No. 324.

July 17: Weighs 9.4 kilos.

July 21: At the end of a period of 25 days presented first signs of an attack of blacktongue, an injection of the floor of the mouth. Further history not relevant.

Dog 70.—Male. Whelped in the laboratory November 25, 1923, between which date and May 15, 1928, served in a number of experiments and suffered several attacks of blacktongue, the latest of which began on August 10, 1926. On stock diet from May 15 to June 26, 1928.

June 26, 1928: In good condition; weighs 11.3 kilos; begins test diet No. 324.

July 24: At the end of a period of 28 days presented first signs of an attack of blacktongue, an injection of the floor of the mouth. Weighs 11.4 kilos. Further history not relevant.

Dog 60.—Male. Whelped in the laboratory November 4, 1923, between which date and May 23, 1928, served in a number of experiments and suffered several attacks of blacktongue, the last of which began May 13, 1926. On stock diet from May 23 to June 26, 1928.

June 26, 1928: In good condition; weighs 9.3 kilos; begins test diet No. 324.

August 7: Weighs 8.1 kilos.

August 9: At the end of a period of 44 days presented first signs of an attack of blacktongue, faintly reddened band-like lesion on the mucosa of the upper lip and an injection of the floor of the mouth. Further history not relevant.

Dog 118.—Bitch. Acquired April 9, 1927, between which date and May 15, 1928, served in one experiment and suffered no attack of blacktongue. On stock diet from May 15 to June 26, 1928.

June 26, 1928: In good condition; weighs 11.5 kilos; begins test diet No. 324.

August 28: Weighs 11.1 kilos.

September 1: At the end of a period of 67 days presented first signs of an attack of blacktongue, an injection of the floor of the mouth. Further history not relevant.

Summary.—All of the test animals developed blacktongue in from 25 to 67 days. It thus appears that although this diet contains 30 grams of casein per 2,400 calorie ration more than diet No. 323, the animals do not show any appreciable delay in the onset of blacktongue as compared with the basic diet.

DISCUSSION AND CONCLUSIONS

Four test animals on our basic experimental diet No. 123, containing 60 grams of casein per 2,400 calorie ration, developed blacktongue in from 26 to 63 days from the beginning of the experiment. When the casein of this diet was doubled (diet No. 323—120 grams per 2,400 calorie ration), the time of onset of blacktongue in 9 dogs was from 65 to 263 days from the beginning of the experiment. However, when the cowpeas are removed from the diet and the casein then increased to 150 grams per 2,400 calorie ration (diet No. 324) the onset of blacktongue in 5 animals was from 25 to 67 days from the beginning of the experiment.

Thus, when the P-P content of the basic diet is lowered by removing the cowpeas the addition of 150 grams of casein per 2,400 calorie ration does not add enough of the P-P factor appreciably to delay the onset of blacktongue beyond that of the basic diet.

It therefore appears that leached casein carries with it a small amount of the P-P factor which, when added to the small quantity already present in the basic diet, is sufficient noticeably to delay the onset of blacktongue but not entirely to prevent the disease.

Furthermore, a high protein diet as represented by 150 grams of casein per 2,400 calorie ration had no appreciable delaying effect on the onset of blacktongue as compared with the onset in animals on 60 grams of casein per 2,400 calorie ration (diet No. 123), and, in view of the evidence that pellagra of man and blacktongue of dogs are analogous conditions, it is further indicated that a high protein diet, when lacking in the P-P factor, is of little or no value in the prevention and treatment of the human disease.

TABLE 1.—Composition of basic blacktongue-producing diet No. 123¹

[Total calories, 2,400]

Articles of diet	Quantity	Nutrients		
		Protein	Fat	Carbo- hydrate
	Grams	Grams	Grams	Grams
Corn meal ²	400	33.6	18.8	296.0
Cowpeas (<i>Vigna sinensis</i>) ³	60	10.7	.7	30.4
Casein (purified) ⁴	60	52.0	.....	.....
Sucrose.....	32	.....	.....	32.0
Cottonseed oil.....	30	.....	30.0	.....
Cod-liver oil.....	15	.....	15.0	.....
Sodium chloride.....	10	.....	.....	.....
Calcium carbonate.....	3	.....	.....	.....
Total nutrients.....	.....	96.3	64.5	358.4
Nutrients per 1,000 calories.....	.....	40.1	26.9	149.3

¹ The corn meal, cowpeas (previously coarsely ground), and salt are stirred into water and cooked in a double boiler of enamel ware for about 1½ hours. Then the other ingredients are well stirred in, the total weight being brought to 2,400 grams with water (so that 1 gram represents 1 calorie), and this finished mixture is served to the dog ad libitum.

² Whole maize meal (white) sifted as for human consumption.

³ The variety known as the California black-eyed pea.

⁴ Commercial casein leached for a week in daily changes of acidulated water, after McCollum (7).

TABLE 2.—Composition of casein diet No. 323¹

[Total calories, 2,400]

Articles of diet	Quantity	Nutrients		
		Protein	Fat	Carbo- hydrate
	Grams	Grams	Grams	Grams
Corn meal ²	400	33.6	18.8	296.0
Cowpeas (<i>Vigna sinensis</i>) ³	50	10.7	.7	30.4
Casein (purified) ⁴	120	104.0		
Cottonseed oil.....	20		20.0	
Cod-liver oil.....	15		15.0	
Sodium chloride.....	10			
Calcium carbonate.....	3			
Total nutrients.....		148.3	54.5	326.4
Nutrients per 1,000 calories.....		61.7	22.7	136.0

¹ The corn meal, cowpeas (previously coarsely ground), and salt are stirred into water and cooked in a double boiler of enamel ware for about 1½ hours. Then the other ingredients are well stirred in, the total weight being brought to 2,400 grams with water (so that 1 gram represents 1 calorie), and this finished mixture is served to the dog ad libitum.

² Whole maize meal (white) sifted as for human consumption.

³ The variety known as the California black-eyed pea.

⁴ Commercial casein leached for a week in daily changes of acidulated water, after McCollum (7).

TABLE 3.—Composition of casein diet No. 324¹

[Total calories, 2,400]

Articles of diet	Quantity	Nutrients		
		Protein	Fat	Carbo- hydrate
	Grams	Grams	Grams	Grams
Corn meal ²	310	24.3	13.0	204.0
Casein (purified) ³	150	129.9		
Cornstarch.....	80			72.0
Cottonseed oil.....	47		47.0	
Cod-liver oil.....	10		10.0	
Salt mixture ⁴	21			
Total nutrients.....		158.2	70.0	276.0
Nutrients per 1,000 calories.....		65.9	29.1	115.0

¹ The corn meal and salt mixture are stirred into water and cooked in a double boiler of enamel ware for about 1½ hours. Then the other ingredients are well stirred in, the total weight being brought to 2,400 grams with water (so that 1 gram represents 1 calorie), and this finished mixture is served to the dog ad libitum.

² Whole white maize meal, not sifted.

³ Commercial casein leached for a week in daily changes of acidulated water, after McCollum (7).

⁴ After Osborne and Mendel (8).

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WILL THE INHALATION OF SILICEOUS DUSTS ACTIVATE A PARTIALLY HEALED FOCUS OF TUBERCULOUS IN- FECTION?

AN EXPERIMENTAL STUDY

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In the American Review of Tuberculosis for December, 1929, there appeared a study entitled "The Reactivation of Healing Primary Tubercles in the Lung by the Inhalation of Quartz, Granite, and Carborundum Dusts." This constituted a full report of certain experiments forming a part of an extended investigation which is being carried on conjointly by the Edward L. Trudeau Foundation, the United States Public Health Service, and the Metropolitan Life Insurance Co. at the Saranac Laboratory for the Study of Tuberculosis. The present communication will briefly outline the procedures and results obtained. For a detailed discussion of the problem, the reader is referred to the publication in the journal quoted.

The majority of the authorities upon pneumonokoniosis are of the opinion that the tuberculous infection which so frequently complicates that condition is an occupational infection acquired in adult life. The author in a study of the lungs of granite cutters dying of tuberculosis became convinced that some of the infections, at least, were probably acquired before the dust exposures commenced. He has attempted to determine experimentally whether it is possible to light up partially healed foci of tuberculosis by the subsequent inhalation of various dusts. The work discussed here deals with primary infections; similar experiments are in progress with healing reinfections more or less analogous to apical tuberculosis in human beings.

The experimental procedure was as follows: Ninety-five guinea pigs were infected by inhalation with the low virulent strain of tubercle bacillus R_1 . At six serial intervals after infection (54 to 206 days) groups of animals were removed to dusting chambers, where they were exposed for eight hours daily to inhalations of quartz,

granite, or carborundum dusts. The approximate concentrations of effective particles (i. e., those under 10μ in diameter) in the atmosphere of these chambers were as follows: Quartz 859 million, granite 957 million, and carborundum 640 million particles per cubic foot of air. The dust inhalations were continued in most instances until the death of the animals, which generally occurred between 200 and 400 days after commencing the exposure. Two of the carborundum animals survived to be killed on the 1,385th day.

Infection in undusted control animals.—For about 12 years infection by inhalation of this attenuated strain of tubercle bacilli has been used at the Saranac laboratory to produce primary tubercles in the lung. The lesions become caseous, but they do not spread. After a period varying from four to eight months they begin to heal, and they completely disappear by a process of resolution within a period of two years. This reaction takes place irregularly, and not all of the tubercles in any one lung resolve at the same rate.

Involvement of the tracheobronchial lymph node is a regular accompaniment of inhalation infection, but with attenuated bacilli, macroscopic lesions are never seen in the abdominal viscera. The lymph node disease apparently rarely heals completely, as the animals usually retain some degree of skin hypersensitiveness to tuberculin throughout the remainder of their lives. Death occurs from other causes.

Reactivation of healing tubercles by inhaled dusts.—The inhalation of certain types of inorganic dusts has been shown to exert a profound effect upon the course of such self-limited primary tuberculous infection. Previous experiments in which the dust inhalation was begun on the day of infection so that the tubercles developed in tissues already containing considerable quantities of dust have demonstrated that quartz and carborundum are most potent irritants. Under such conditions these two dusts have regularly caused the infection to become progressive in every animal exposed. Granite has been much less active, and it has generally resulted only in retardation of resolution, rather than in spreading the infection. Such a reaction is not a result of dust inhalation per se, for no alteration of the usual course of the infection has been observed with inhaled marble dust; bituminous coal, if anything, seems to accelerate the healing process; asbestos dust apparently exerts a stimulating effect only in an occasional animal.

In the experiment under consideration it has been shown that quartz, granite, and carborundum dusts can affect primary tubercles in the lung after they have already reached maturity. In the table which follows it will be noted that occasionally even tubercles as old as 200 or 400 days are reactivated and caused to spread. Under any

circumstances, a period of dust inhalation varying from two to five months must elapse before these stimulating effects become apparent.

The table summarizes the results of the present experiment. The number of animals in the different groups is small, but in the light of the author's previous experience the results seem significant. It was originally intended that there should be four animals exposed to each of the three dusts at the different intervals after infection. Deaths from endemic pneumonia and other causes have reduced the number available. Moreover, the high incidence of complicating pneumonia, particularly in the granite group, has undoubtedly influenced the picture in many cases. For example, all of the 54-day granite group died of acute pneumonia caused by the Friedlander bacillus from 50 to 150 days after commencing the dust inhalation. The entire group was prematurely destroyed before the effects of the dust had had time to become manifest.

*Spread of primary foci in the lungs*¹

Duration infection previous to dust exposure	Quartz		Granite		Carborundum		Controls	
	Number of pigs	Per cent showing spread	Number of pigs	Per cent showing spread	Number of pigs	Per cent showing spread	Number of pigs	Per cent showing spread
54 days	4	100	4	0	4	75	1	0
87 days	3	100	4	100	4	25	1	0
112 days	4	50	3	0	3	66.6	1	0
151 days	2	50	3	0	2	0	1	0
177 days	3	66.6	2	0	3	0	1	0
206 days	3	66.6	3	33.3	3	33.3	1	0
400 days					3	66.6	0	0
654 days							4	0
Total and average for all periods	19	73.6	19	26.3	22	31.8	{ 10 25	0 0

¹ Includes only tissues examined microscopically from animals without chronic phases of endemic pneumonia

² 5 other undusted animals which died from accidental causes before exposure to dust.

Since the number of animals available for final analysis in the granite group was so small, supporting data from another experiment in which conditions were similar have been introduced. In this case, 26 guinea pigs, infected 150 days previously with approximately the same dose of the same strain of tubercle bacilli, were placed in a room in which there was a rather heavy concentration of very fine granite dust (estimated at perhaps 100 million particles per cubic foot). This was not intended to be a dust inhalation experiment, but was more or less accidental in nature. However, the animals in a short time began to show a marked increase in the intensity with which they reacted to tuberculin, and it was thought that the dust might have irritated their healing infection. The plan was changed, and they were allowed to live in this atmosphere for 326 days. At the end of this time 4 had already died and 6 had been killed. At autopsy

no stimulating effect upon their tuberculous infection could be noted. Because it was suspected that the dust concentration might be too low, the remaining animals were placed in an atmosphere with a concentration of 396.5 million particles of granite dust per cubic foot (sugar-tube method). They were killed at intervals from 2 to 61 days thereafter. In none of them did the dust inhalation show any tendency to reactivate the tuberculous foci, but it did prevent the usual process of resolution, so that fibrous and calcified tubercles could be found as long as 583 days after infection. The 26 guinea pigs of this unplanned experiment might be used to substantiate the negative findings of the fourth group of the granite series. The initial dust concentration was perhaps not as high, but all the dust suspended in the atmosphere in this room was extremely fine as it escaped from a dusting chamber located in a far corner.

Character of the lesions produced by reactivation.—In the undusted control animal the lesions of primary low virulent inhalation infection regularly consist of 15 or 20 subpleural pulmonary tubercles, 2 to 3 millimeters in diameter, together with an extensive involvement of the tracheobronchial lymph nodes. When resolution is completed all macroscopic evidence of reaction in the lungs disappears, and after two or more years even microscopic traces of the lesions have vanished.

In the lung of the *animal exposed to the prolonged inhalation of dust* the primary tubercles begin to spread after two or more months. They enlarge locally and attain a diameter of 8 or 10 millimeters. Still later, bronchogenic extensions bring about massive involvement in widespread portions of the lung. The site of the primary tubercles often undergoes cavity formation and secondary cavities may develop in other portions of the organ. The intervening tissues exhibit the reactions characteristic of acute and chronic tuberculous pneumonia. Dusts like carborundum and granite accumulate in sufficient quantities to produce gross pigmentation of the pleural and subpleural zones; the colorless quartz excites a widespread nodular and diffuse fibrosis which is usually avascular so that the lung assumes a characteristic grey-yellow, putty-like appearance. Pleural adhesions are frequent, especially immediately above the site of the original primary tubercles.

Usually an haematogenous spread of the infection from the lung is responsible for macroscopic disease in the spleen, liver, and hepatic lymph nodes. Unless accidental infections supervene, the animals die of their tuberculosis or of failure of the right heart.

Microscopically, it can be shown that those primary tubercles which contain considerable amounts of dust in their structure tend to become progressive and to spread. Tubercle bacilli which are few in number and hard to detect in the lesions of the undusted lung become

very numerous after an exposure to dust three to five months in duration. Simultaneously with this multiplication of organisms large numbers of polynuclear leucocytes invade the caseous center of the tubercle and extensions then occur through the inflamed wall of the nodule. In addition to the usual changes characteristic of chronic tuberculosis, which in general tend toward fibrosis, there are also the special responses to the different types of dust which have been described elsewhere. They tend to be much more marked in the animal with coincident tuberculosis than in the uninfected lung.

The mechanism responsible for the spread of the tuberculous infection is not yet understood. It would appear to be associated with the presence of silica, for clinical experience and previous experiments with soft coal and marble dusts produced no stimulating effect upon such infections. Asbestos dust, a silicate of magnesium, apparently exerts a rather mild stimulation. Carborundum, which is the carbide of silicon, and which theoretically contains very little free crystalline silica, is very active. Experiments are now being carried on which, it is hoped, will demonstrate whether the animal body is able to dissolve quartz, carborundum, granite, and various silicates, thereby liberating soluble silica. Whether this hypothetical soluble silica acts directly upon a few tubercle bacilli in a healing lesion and causes them to multiply, or whether silica or other dissolved substances first react upon the cells and thereby alter metabolism, or form substances favorable to the continued growth of this organism is not yet known to-day. Experiments *in vitro* are also in progress which should throw light upon this phase of the reaction.

It is unlikely that substances like colloidal silica would diffuse out of the dust containing phagocytes and find their way unchanged into the interior of a tubercle, where the bacilli are located. Contact with basic ions would theoretically form silicates very soon after diffusion had begun. But there is morphological evidence to indicate that the phagocytes may carry the dust into the very heart of the tubercle, where diffusible products would be in immediate contact with the organisms. Furthermore, quartz, the dust which is most potent in exercising a stimulating effect upon the infectious process, reaches the interior of the tubercle in greatest quantity; next in order comes carborundum, and the least amounts of the relatively mild stimulant, granite dust, are seen in this location.

The mechanism must be one of active transportation of dust, for, under the conditions of this experiment, tubercles are already fully developed at the time when dust begins to enter the lung. After an exposure of several months the caseous centers of these lesions are found to contain collections of dust which are sometimes macroscopically visible. The behavior of the phagocytes with reference to the different types of dust was therefore studied.

Mononuclear phagocytes ingest quartz particles relatively slowly, and, in comparison with other dusts, few particles enter any one cell. Either because their normal rate of motility is not impeded, or perhaps because it is accelerated, the cells tend to move out of the air spaces and enter the lymph spaces. Many of them come to rest about solid inelastic structures like lymph nodules and tubercles. They penetrate these formations and do not escape, possibly because of the existing lymph stasis. Carborundum and granite particles, on the other hand, are ingested rapidly and the cells become so overloaded that their structure is obscured. Perhaps for the same reason, they do not migrate rapidly, but tend to remain within the air spaces for at least three or four years. A few cells which happen to have taken in only a few particles do move away and ultimately localize in the same structures involved in the quartz series.

One more fact is necessary for an appreciation of the significance of the preceding material. Inhaled dust ingested by phagocytes is not uniformly distributed throughout the air passages, but much of it usually comes to rest in the subpleural alveoli, and particularly in those which form the boundaries of contiguous primary units. Furthermore, in the guinea pig more dust appears to enter the ventral surfaces of the cephalic lobes and the paravertibral borders of the caudal lobes than other portions of the lung. The tubercles do not necessarily localize in the same areas.

These observations have formed the basis for an hypothesis to explain the varied reaction of different siliceous dusts¹ with respect to tuberculous infection. The accidental formation of a tubercle at a point where dust localized in considerable quantities might bring about conditions favorable for the reaction which initiates spread. But if the position of the two agents, tubercle bacilli and dust, did not happen to coincide, only the mechanism of actively motile phagocytes would come into play. Granite irritation, on the other hand, would only be effective in the few tubercles lying in the direct pathway of the dust and in those in which a few cells containing relatively small quantities of dust had happened to migrate. •

This morphological evidence must be supported by the chemical and bacteriological studies now in progress before it will be possible to explain how the reactivation of a quiescent tuberculous lesion takes place.

The experiments reported have proved that in the guinea pig it is possible to light up a quiescent focus of primary tuberculous infection and to render that focus progressive. However, this does not

¹ Carborundum is not a siliceous dust in the sense that it contains appreciable amounts of free silica. However, it is not impossible that the alkaline body fluids might even attack and dissolve silica from this very hard carbide and silicon.

necessarily indicate that the tuberculosis which so frequently complicates human silicosis also arises in the same manner. The truth concerning the disease in man can only be ascertained by careful clinical, radiographic, and post-mortem observation.

To answer the question with finality, data should be collected upon the following points: Incidence of tuberculous infection; incidence of latent apical tuberculosis; post-mortem appearances. On applicants for work in a dusty trade, intracutaneous tuberculin reactions, repeated if necessary, would indicate the presence or absence of infection. If any were negative, such tests repeated at yearly intervals during their employment would serve to date the appearance of infection. Among this same group physical examination would detect only men with considerable amounts of pulmonary tuberculosis, but the X ray would reveal more. In regard to the use of this diagnostic agent, a word should be said. In the study of silicosis it is customary in many places to take very hard negatives, and it is questionable whether they are adequate to detect the ill-defined alterations characteristic of partially healed apical tuberculosis. No comment upon the need for post-mortem examinations is required. Only in South Africa has a sufficient number of autopsies been done to permit statistical treatment of the material.

It is fully appreciated that human prejudice and ignorance offer great barriers to the execution of such a program, but nevertheless this is the goal toward which our efforts should be directed.

COURT DECISION RELATING TO PUBLIC HEALTH

City restrained from dumping garbage in violation of law.—(Texas Court of Civil Appeals; *Lambert v. City of Port Arthur*, 22 S. W. (2d) 320; decided November 8, 1929.) Article 696a of the Penal Code provided that no municipal corporation should maintain any dumping ground or dump any trash, refuse, débris, or dead animals or permit the same to remain within or nearer than 300 yards of any public highway. It further provided that an injunction suit could be brought by any private individual affected or to be affected thereby to prevent any such threatened or probable violation of the law. The city of Port Arthur deposited "wet" garbage, old scrap iron, tin cans, and other trash of a similar nature in trenches dug on certain property owned by it. As one trench was dug it was filled with garbage; then another trench would be dug by its side and the dirt deposited over the first trench, covering the garbage and raising the general level of the ground. Generally the garbage was covered within 24 hours, but not always. The said property was within the prohibited distance as set forth in the statute.

The plaintiff owned property adjacent to the property on which the garbage, etc., was being deposited. He brought suit against the city, and the city was enjoined by the trial court from further violating the law. Later the trial court suspended the operation of the injunction for a period of something over three months, and the plaintiff appealed. The court of civil appeals held that the order suspending the operation of the injunction was erroneous, deciding (a) that the city was dumping its garbage, as the word "dump" was used in article 696a; (b) that the garbage deposited was in violation of the statute, all of the garbage deposited coming within the meaning of the words "trash, refuse, débris," etc.; (c) that the plaintiff had an interest in the litigation such as authorized him to prosecute the suit; and (d) that no necessity existed for filling in the city's property with the garbage, there being no showing that it could not be reasonably filled in some other way.

DEATHS DURING WEEK ENDED JANUARY 25, 1930

Summary of information received by telegraph from industrial insurance companies for the week ended January 25, 1930, and corresponding week of 1929. (From the Weekly Health Index, January 29, 1930, issued by the Bureau of the Census, Department of Commerce)

	Week ended Jan. 25, 1930	Corresponding week, 1929
Policies in force.....	75, 467, 337	72, 978, 042
Number of death claims.....	14, 091	21, 326
Death claims per 1,000 policies in force, annual rate.....	9. 7	15. 2

Deaths from all causes in certain large cities of the United States during the week ended January 25, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index, January 29, 1930, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Jan 25, 1930		Annual death rate per 1,000, corre- sponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Jan. 25, 1930 ¹
	Total deaths	Death rate ¹		Week ended Jan 25, 1930	Corre- sponding week, 1929	
Total (65 cities).....	7, 548	13. 2	17. 8	747	971	' 66
Akron.....	42			8	6	73
Albany ²	42	18. 2	27. 7	3	6	66
Atlanta.....	90	18. 4	20. 6	10	11	101
White.....	39			3	5	95
Colored.....	51	(³)	(³)	7	6	111
Baltimore ⁴	250	15. 7	21. 5	22	14	75
White.....	188			15	9	64
Colored.....	62	(³)	(³)	7	5	113
Birmingham.....	44	10. 3	23. 0	2	13	19
White.....	21			1	8	15
Colored.....	23	(³)	(³)	1	5	24
Boston.....	207	13. 5	25. 7	17	32	48
Bridgeport.....	31			6	7	103
Buffalo.....	161	15. 1	22. 0	13	19	80

Footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended January 25, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929—Continued

City	Week ended Jan. 25, 1930		Annual death rate per 1,000, corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Jan. 25, 1930 ¹
	Total deaths	Death rate ¹		Week ended Jan. 25, 1930	Corresponding week, 1929	
Cambridge.....	26	10.8	18.7	3	7	56
Camden.....	25	9.6	15.0	8	7	145
Canton.....	28	10.3	14.7	4	5	90
Chicago ⁴	731	12.1	13.1	70	89	63
Cincinnati.....	143			16	20	95
Cleveland.....	208	10.7	12.5	21	26	63
Columbus.....	84	14.6	17.1	7	5	68
Dallas.....	69	16.5	16.8	6	9	
White.....	54			6	8	
Colored.....	15	(⁵)	(⁵)	0	1	
Dayton.....	38	10.7	17.8	5	2	74
Denver.....	78	13.8	14.9	5	7	52
Des Moines.....	32	11.0	11.3	5	3	87
Detroit.....	298	11.3	14.0	57	51	88
Duluth.....	19	8.5	6.7	1	0	27
El Paso.....	32	11.2	20.8	1	7	
Erie.....	32			1	2	21
Full River.....	26	10.1	27.6	1	11	23
Flint.....	21	7.4	10.2	3	4	35
Fort Worth.....	45	13.8	20.5	5	7	
White.....	35			4	6	
Colored.....	10	(⁵)	(⁵)	1	1	
Grand Rapids.....	32	10.2	8.9	2	2	30
Houston.....	80			9	8	
White.....	53			8	4	
Colored.....	27	(⁵)	(⁵)	1	4	
Indianapolis.....	126	17.2	14.9	9	5	67
White.....	108			6	5	52
Colored.....	18	(⁵)	(⁵)	3	0	161
Jersey City.....	70	11.2	19.1	8	11	70
Kansas City, Kans.....	36	15.9	15.0	6	4	142
White.....	28			6	4	150
Colored.....	8	(⁵)	(⁵)	0	0	0
Kansas City, Mo.....	111	17.2	16.4	6	9	47
Knoxville.....	27	14.4	21.3	1	6	23
White.....	23			0	4	0
Colored.....	4	(⁵)	(⁵)	1	2	247
Los Angeles.....	64			20	17	61
Louisville.....	61	10.1	27.9	3	9	61
White.....	46			2	7	26
Colored.....	18	(⁵)	(⁵)	1	2	72
Lowell.....	53	9.4	15.3	4	2	95
Lynn.....	19	25.8	31.0	2	2	51
Memphis.....	94			10	17	119
White.....	49			1	9	18
Colored.....	45	(⁵)	(⁵)	9	8	303
Milwaukee.....	106	10.2	11.6	11	19	55
Minneapolis.....	99	11.3	14.2	7	14	45
Nashville.....	42	15.7	28.1	10	7	155
White.....	26			6	4	123
Colored.....	16	(⁵)	(⁵)	4	3	253
New Bedford.....	21			0	4	0
New Haven.....	42	11.7	15.0	1	3	19
New Orleans.....	192	23.3	20.5	30	5	174
White.....	114			16	2	141
Colored.....	78	(⁵)	(⁵)	14	3	235
New York.....	1,550	13.4	20.6	165	231	60
Bronx Borough.....	212	11.6	18.2	17	23	40
Brooklyn Borough.....	520	11.9	18.9	63	90	67
Manhattan Borough.....	589	17.8	28.8	70	91	115
Queens Borough.....	165	10.1	14.5	11	22	32
Richmond Borough.....	48	16.6	22.8	4	5	74
Newark, N. J.....	167	11.8	18.4	9	17	47
Oakland.....	71	13.5	14.8	4	6	48
Oklahoma City.....	48			5	5	98
Omaha.....	50	11.7	15.2	2	9	23
Paterson.....	30	10.8	20.9	2	1	35
Philadelphia.....	496	12.5	16.4	36	67	53
Pittsburgh.....	195	15.1	19.5	16	23	59
Portland, Oreg.....	83			2	4	25
Providence.....	72	13.1	22.4	5	10	46

Footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended January 25, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929—Continued

City	Week ended Jan. 25, 1930		Annual death rate per 1,000, corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Jan. 25, 1930 ¹
	Total deaths	Death rate ¹		Week ended Jan. 25, 1930	Corresponding week, 1929	
Richmond.....	65	17.4	15.6	7	4	104
White.....	43			1	2	22
Colored.....	22	(⁴)	(⁵)	6	2	262
Rochester.....	73	11.6	20.7	7	18	62
St. Louis.....	225	13.8	20.2	8	30	26
St. Paul.....	67			2	4	20
Salt Lake City ¹	43	16.2	14.4	6	5	94
San Antonio.....	100	26.1	19.1	22	10	
San Diego.....	37			4	4	84
San Francisco.....	170	15.1	17.6	5	11	34
Schenectady.....	22	12.3	28.8	3	2	94
Seattle.....	60	8.2	11.6	2	3	20
Somerville.....	30	15.2	16.8	4	3	130
Spokane.....	27	12.9	14.3	9	2	235
Springfield, Mass.....	30	10.4	19.5	2	5	32
Syracuse.....	46	12.0	17.8	6	7	74
Tacoma.....	25	11.8	14.2	4	1	103
Toledo.....	74	12.3	14.8	4	9	37
Trenton.....	34	12.8	22.1	4	7	74
Utica.....	28	14.0	16.0	2	2	57
Washington, D. C.....	154	14.5	19.0	17	20	99
White.....	94			9	7	78
Colored.....	60	(⁴)	(⁵)	8	13	142
Waterbury.....	15			2	0	51
Wilmington, Del.....	27	11.0	12.6	4	3	90
Worcester.....	69	18.2	12.4	7	12	91
Yonkers.....	15	6.4	13.8	2	5	48
Youngstown.....	39	11.7	11.4	3	2	47

¹ Annual rate per 1,000 population.

² Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.

³ Data for 73 cities.

⁴ Deaths for week ended Friday.

⁵ In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, 14; Knoxville, 15; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 21.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended January 25, 1930, and January 26, 1929

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended January 25, 1930, and January 26, 1929

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Jan. 25, 1930	Week ended Jan. 26, 1929	Week ended Jan. 25, 1930	Week ended Jan. 26, 1929	Week ended Jan. 25, 1930	Week ended Jan. 26, 1929	Week ended Jan. 25, 1930	Week ended Jan. 26, 1929
New England States								
Maine.....	4	7	1	1,256	3	224	0	0
New Hampshire.....	3		9	74	23	38	0	0
Vermont.....	1	1		53	18		0	0
Massachusetts.....	133	109	14	2,110	216	630	3	2
Rhode Island.....	12	14		595	2	43	0	1
Connecticut.....	32	35	21	3,319	23	324	0	2
Middle Atlantic States								
New York.....	141	221	134	1,929	407	735	15	34
New Jersey.....	114	137	8	890	221	184	3	8
Pennsylvania.....	217	176			690	1,265	11	5
East North Central States:								
Ohio.....	34	50	8	486	673	395	3	3
Indiana.....	26	33		178	49	185	23	0
Illinois.....	218	130	64	418	432	407	11	11
Michigan.....	83	85	3	858	295	186	31	15
Wisconsin.....	24	11	76	2,407	815	217	6	7
West North Central States:								
Minnesota.....	16	37		65	136	176	0	1
Iowa.....	11	12			295		5	6
Missouri.....	33	43	19	942	43	135	14	14
North Dakota.....	1	9	9	39	17	31	7	9
South Dakota.....	7	2		2	21	64	1	1
Nebraska.....	5	14	17	31	365	23	6	0
Kansas.....	20	9	16	293	260	72	2	7
South Atlantic States								
Delaware.....	8			27		31	0	0
Maryland ¹	27	31	21	3,391	14	82	1	1
District of Columbia.....	20	14	3	171	3	2	0	0
Virginia.....								
West Virginia.....	19	20	44	5,372	100	97	0	2
North Carolina.....	42	25	39		18	43	12	1
South Carolina.....	12	20	1,036	2,157		4	6	0
Georgia.....	14	12	156	1,446	116	40	0	0
Florida.....	10	14	6	593	12	4	0	2

¹ New York City only.

² Week ended Friday.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended January 25, 1930, and January 26, 1929—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Jan. 25, 1930	Week ended Jan. 26, 1929	Week ended Jan. 25, 1930	Week ended Jan. 26, 1929	Week ended Jan. 25, 1930	Week ended Jan. 26, 1929	Week ended Jan. 25, 1930	Week ended Jan. 26, 1929
East South Central States:								
Kentucky.....				575	72	51	0	0
Tennessee.....	8	9	158	2,877	64	4	14	1
Alabama.....	52	78	185	11,508	21	104	3	0
Mississippi.....	11	0		1,482			4	
West South Central States								
Arkansas.....	10	7	171	1,572	3	30	7	9
Louisiana.....	35	21	27	2,631	58	28	2	8
Oklahoma ¹	19	29	185	2,606	48	33	3	20
Texas.....	35	42	160	1,407	94	145	1	3
Mountain States								
Montana.....	3	2		104	32	139	1	8
Idaho.....		5			86	10	1	0
Wyoming.....	3	1	8	15	7	3	1	2
Colorado.....	3	10	1	6	40	2	3	5
New Mexico.....	6	7	5	306	90	1	3	0
Arizona.....	9	6	52	13	1	3	13	17
Utah ²	4	2	2	4	98	3	8	2
Pacific States								
Washington.....	13	17		85	123	38	4	4
Oregon.....	13	17	69	247	21	80	1	5
California.....	82	85	48	250	628	29	10	18
Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Jan 25, 1930	Week ended Jan 26, 1929	Week ended Jan 25, 1930	Week ended Jan 26, 1929	Week ended Jan 25, 1930	Week ended Jan 26, 1929	Week ended Jan 25, 1930	Week ended Jan 26, 1929
New England States								
Maine.....	0	0	92	25	0	0	4	0
New Hampshire.....	0	0	25	11	0	0	0	0
Vermont.....	0	0	15	4	5	3	0	0
Massachusetts.....	1	2	349	272	0	0	12	4
Rhode Island.....	0	0	25	30	0	0	0	0
Connecticut.....	0	0	138	65	0	0	0	0
Middle Atlantic States								
New York.....	3	3	519	482	16	0	15	10
New Jersey.....	0	1	233	161	0	0	4	1
Pennsylvania.....	0	0	504	420	5	0	18	6
East North Central States								
Ohio.....	1	2	205	195	271	22	7	4
Indiana.....	0	0	217	189	254	63	1	4
Illinois.....	0	3	517	362	116	143	8	20
Michigan.....	1	2	284	279	64	14	6	4
Wisconsin.....	0	0	186	144	77	11	0	1
West North Central States:								
Minnesota.....	1	0	136	94	7	1	3	2
Iowa.....	0	0	87	106	150	22	2	0
Missouri.....	0	0	91	97	26	26	0	2
North Dakota.....	1	0	31	57	52	0	0	2
South Dakota.....	0	0	8	31	55	17	1	0
Nebraska.....	3	0	90	73	71	26	0	1
Kansas.....	0	0	123	121	46	15	4	2
South Atlantic States:								
Delaware.....	0	0	17	2	0	0	0	0
Maryland ¹	0	2	75	49	0	2	9	36
District of Columbia.....	0	0	20	10	0	0	1	0
Virginia.....	1							
West Virginia.....	0	1	30	42	0	28	3	2
North Carolina.....	1	0	54	40	33	39	2	0
South Carolina.....	3	1	26	17	1	0	5	3
Georgia.....	0	0	30	17	0	0	2	1
Florida.....	0	0	12	8	1	5	5	2
East South Central States:								
Kentucky.....	0	0	46	85	16	0	5	2
Tennessee.....	0	0	17	29	11	1	10	4
Alabama.....	2	0	51	39	4	33	11	12
Mississippi.....	0	1	19	10	0	2	2	2

¹ Figures for 1930 are exclusive of Oklahoma City and Tulsa.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended January 25, 1930, and January 26, 1929—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Jan. 25, 1930	Week ended Jan. 26, 1929	Week ended Jan. 25, 1930	Week ended Jan. 26, 1929	Week ended Jan. 25, 1930	Week ended Jan. 26, 1929	Week ended Jan. 25, 1930	Week ended Jan. 26, 1929
West South Central States								
Arkansas.....	0	0	33	10	20	0	2	2
Louisiana.....	0	1	22	14	6	11	0	10
Oklahoma ¹	0	0	26	41	86	45	3	3
Texas.....	0	0	47	53	55	61	1	2
Mountain States								
Montana.....	0	0	39	35	6	11	1	1
Idaho.....	0	0	16	20	11	26	5	4
Wyoming.....	0	0	16	14	3	0	0	0
Colorado.....	0	0	24	17	26	7	3	0
New Mexico.....	0	1	11	6	2	0	0	1
Arizona.....	0	0	16	9	26	17	1	0
Utah ²	0	0	9	14	1	5	3	0
Pacific States								
Washington.....	1	1	87	30	93	53	2	2
Oregon.....	0	0	54	35	26	34	0	2
California.....	1	3	348	345	101	44	3	9

¹ Week ended Friday

² Figures for 1930 are exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
<i>November, 1929</i>										
California.....	26	350	202	6	407	2	0	1,071	179	46
Delaware.....	16	16	10	—	2	—	11	13	0	3
Rhode Island.....	71	71	10	—	6	—	0	76	0	2
<i>December, 1929</i>										
Idaho.....	17	4	11	—	461	—	0	118	138	5
Illinois.....	43	980	118	3	1,525	—	1	2,333	720	38
Michigan.....	70	488	13	—	593	—	9	1,142	257	12
Missouri.....	44	207	88	1	207	—	0	420	146	23
Montana.....	10	13	6	—	117	—	0	173	68	9
New Jersey.....	23	560	81	—	310	—	4	735	0	17
North Carolina.....	11	441	97	—	21	125	8	363	48	36
Oklahoma ¹	15	191	530	91	88	21	1	194	262	37
Rhode Island.....	1	36	—	—	5	—	—	72	0	2
Washington.....	22	63	67	—	183	—	6	240	363	12
West Virginia.....	4	73	84	—	402	—	3	225	65	30
Wisconsin.....	7	68	120	—	2,117	—	0	416	175	20

¹ Oklahoma City and Tulsa not included.

<i>November, 1929</i>		<i>November, 1929</i>	
Anthrax:	Cases	Jaundice	Cases
Delaware.....	1	California.....	1
Chicken pox:		Leprosy.....	
California.....	1,052	California.....	4
Delaware.....	57	Lethargic encephalitis:	
Rhode Island.....	61	California.....	3
Dysentery		Mumps:	
California (amebic).....	6	California.....	1,203
California (bacillary).....	84	Rhode Island.....	5
Food poisoning:		Ophthalmia neonatorum:	
California.....	6	Rhode Island.....	2
German measles:		Rabies in animals	
California.....	32	California.....	59
Granuloma, coccidiodal:		Rhode Island.....	9
California.....	10	Septic sore throat:	
		Rhode Island.....	3

Tetanus:		Cases	Ophthalmia neonatorum—Continued.		Cases
California.....		3	New Jersey.....		3
Trachoma:			North Carolina.....		1
California.....		11	Oklahoma ¹		3
Rhode Island.....		1	Wisconsin.....		3
Tularaemia:			Paratyphoid fever:		
California.....		6	Illinois.....		1
Undulant fever:			New Jersey.....		2
California.....		11	Washington.....		3
Whooping cough:			Puerperal septicemia:		
California.....		425	Illinois.....		10
Delaware.....		24	Washington.....		2
Rhode Island.....		62	Rabies in animals:		
<i>December, 1929</i>			Missouri.....		11
Anthrax:			Rhode Island.....		6
Rhode Island.....		1	Rabies in man:		
Chicken pox:			Michigan.....		2
Idaho.....		180	North Carolina.....		1
Illinois.....		2,290	Scabies.		
Michigan.....		1,858	Washington.....		1
Missouri.....		396	Septic sore throat:		
Montana.....		70	Illinois.....		12
New Jersey.....		1,401	Michigan.....		34
North Carolina.....		745	Missouri.....		18
Oklahoma ¹		86	North Carolina.....		24
Rhode Island.....		56	Oklahoma ¹		67
Washington.....		791	Rhode Island.....		3
West Virginia.....		275	Tetanus		
Wisconsin.....		1,721	Illinois.....		1
Dysentery			Missouri.....		1
Illinois.....		18	Oklahoma ¹		1
Oklahoma ¹		4	Trachoma:		
German measles			Illinois.....		6
Illinois.....		28	Missouri.....		29
Montana.....		1	Oklahoma ¹		8
New Jersey.....		47	Rhode Island.....		2
North Carolina.....		5	Tularaemia		
Rhode Island.....		2	Illinois.....		32
Washington.....		17	Missouri.....		8
Wisconsin.....		19	North Carolina.....		1
Impetigo contagiosa			Undulant fever		
Washington.....		8	Illinois.....		4
Lead poisoning			Michigan.....		2
Illinois.....		13	Missouri.....		5
New Jersey.....		4	Oklahoma ¹		1
Lethargic encephalitis			Rhode Island.....		1
Illinois.....		2	Washington.....		3
Michigan.....		9	Vincent's angina.		
Washington.....		3	Illinois.....		1
Wisconsin.....		1	Oklahoma ¹		2
Mumps.			Whooping cough		
Idaho.....		115	Idaho.....		50
Illinois.....		603	Illinois.....		860
Michigan.....		455	Michigan.....		424
Missouri.....		55	Missouri.....		94
Montana.....		497	Montana.....		34
Oklahoma ¹		7	New Jersey.....		513
Washington.....		339	North Carolina.....		789
Wisconsin.....		334	Oklahoma ¹		41
Ophthalmia neonatorum:			Rhode Island.....		38
Idaho.....		1	Washington.....		74
Illinois.....		37	West Virginia.....		151
Missouri.....		1	Wisconsin.....		580

¹ Oklahoma City and Tulsa not included.

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 96 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 31,970,000. The estimated population of the 89 cities reporting deaths is more than 30,375,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended January 18, 1930, and January 19, 1929

	1930	1929	Estimated expectancy
<i>Cases reported</i>			
Diphtheria:			
46 States.....	1,632	1,618	
96 cities.....	677	780	1,082
Measles:			
43 States.....	5,992	5,324	
96 cities.....	1,281	1,321	
Meningococcus meningitis:			
46 States.....	240	217	
96 cities.....	102	96	
Polio-myelitis:			
46 States.....	21	10	
Scarlet fever:			
46 States.....	4,782	4,003	
96 cities.....	1,699	1,355	1,512
Smallpox:			
46 States.....	1,805	822	
96 cities.....	203	41	200
Typhoid fever:			
46 States.....	164	89	
96 cities.....	34	22	39
<i>Deaths reported</i>			
Influenza and pneumonia			
89 cities.....	1,005	3,124	
Smallpox			
89 cities.....	0	0	

City reports for week ended January 18, 1930

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during non-epidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1921 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Chick- en pox, cases re- ported	Diphtheria		Influenza		Meas- les, cases re- ported	Mumps, cases re- ported	Pneu- monia, deaths re- ported
		Cases, esti- mated expect- ancy	Cases re- ported	Cases re- ported	Deaths re- ported			
NEW ENGLAND								
Maine:								
Portland.....	14	1	0		0	1	4	6
New Hampshire:								
Concord.....	0	0	1		0	5	0	1
Manchester.....	0	1	0		0	0	0	7
Nashua.....	0	0	0		0	0	0	0

City reports for week ended January 18, 1930—Continued

Division, State, and city	Chick- en pox, cases re- ported	Diphtheria		Influenza		Meas- les, cases re- ported	Mumps, cases re- ported	Pneu- monia, deaths re- ported
		Cases, esti- mated expect- ancy	Cases re- ported	Cases re- ported	Deaths re- ported			
NEW ENGLAND—continued								
Vermont:								
Barre.....	2	0	0		0	0	0	0
Burlington.....	1	0	1		0	0	1	0
Massachusetts:								
Boston.....	69	38	28	4	0	18	60	28
Fall River.....	9	4	4		0	0	0	2
Springfield.....	14	5	5		0	0	9	0
Worcester.....	20	5	2		1	45	1	1
Rhode Island:								
Pawtucket.....	15	1	3		0	0	0	1
Providence.....	0	10	5		0	1	2	8
Connecticut:								
Bridgeport.....	11	6	2	2	2	0	0	3
Hartford.....	10	9	3		1	0	1	2
New Haven.....	43	1	2		0	1	3	0
MIDDLE ATLANTIC								
New York:								
Buffalo.....	31	15	10		0	2	3	17
New York.....	196	230	164	20	21	73	101	215
Rochester.....	22	10	2	2	0	4	0	5
Syracuse.....	51	5	3		0	1	61	7
New Jersey:								
Camden.....	1	8	8		0	0	0	1
Newark.....	64	21	22	4	0	54	16	17
Trenton.....	4	3	1		0	27	0	5
Pennsylvania:								
Philadelphia.....	136	79	22	8	7	18	37	54
Pittsburgh.....	55	25	24	3	3	78	8	28
Reading.....	23	3	1		0	2	2	1
Scranton.....	5	5	6		0	0	1	0
EAST NORTH CENTRAL								
Ohio:								
Cincinnati.....	18	12	3		1	1	4	3
Cleveland.....	181	39	21	6	3	2	17	19
Columbus.....	20	6	3	3	4	6	1	4
Toledo.....	74	9	2	5	5	361	13	6
Indiana:								
Fort Wayne.....	1	5	5		0	0	0	4
Indianapolis.....	41	10	1		0	11	6	15
South Bend.....	0	1	1		0	0	0	2
Terre Haute.....	0	2	0		2	0	0	3
Illinois:								
Chicago.....	134	110	121	15	11	19	10	76
Springfield.....	7	1	1		0	0	0	0
Michigan:								
Detroit.....	86	59	40	3	4	179	16	35
Flint.....	18	6	4		0	2	2	4
Grand Rapids.....	4	2	0		0	0	2	0
Wisconsin:								
Kenosha.....	4	2	0		0	0	1	1
Madison.....	2	0	2		0	137	4	0
Milwaukee.....	199	22	2	2	2	4	41	7
Racine.....	19	2	1		0	1	0	0
Superior.....	1	1	0		0	17	0	1
WEST NORTH CENTRAL								
Minnesota:								
Duluth.....	5	0	0		1	18	2	1
Minneapolis.....	118	24	8		3	31	30	14
St. Paul.....	26	11	2		1	3	10	14
Iowa:								
Davenport.....	5	1	1			2	0	-----
Des Moines.....	3	3	0			9	1	-----
Sioux City.....	14	0	0			0	1	-----
Waterloo.....	8	1	0			127	0	-----

City reports for week ended January 18, 1930—Continued

Division, State, and city	Chick- en pox, cases re- ported	Diphtheria		Influenza		Meas- les, cases re- ported	Mumps, cases re- ported	Pneu- monia, deaths re- ported
		Cases, es- timated ex- pectancy	Cases re- ported	Cases re- ported	Deaths re- ported			
WEST NORTH CENTRAL—contd.								
Missouri:								
Kansas City.....	17	8	5	1	3	1	0	13
St. Joseph.....	2	4	2		0	0	0	5
St. Louis.....	5	48	21			2	12	
North Dakota:								
Fargo.....	5	0	0		0	0	6	1
Grand Forks.....	4	1	0			0	0	
South Dakota:								
Aberdeen.....	13	0	0			1	0	
Sioux Falls.....	0	1	0			8	0	
Nebraska:								
Omaha.....	5	5	14		0	5	1	10
Kansas:								
Topeka.....	33	2	3	1	1	4	5	4
Wichita.....	4	4	2		0	1	2	8
SOUTH ATLANTIC								
Delaware:								
Wilmington.....	3	2	1		0	0	1	4
Maryland:								
Baltimore.....	70	30	20	22	5	2	14	26
Cumberland.....	0	2	0	3	0	0	0	0
Frederick.....	0	0	1		0	0	0	0
District of Columbia								
Washington.....	23	21	10	1	0	2	0	14
Virginia:								
Lynchburg.....	16	2	0		0	78	17	4
Norfolk.....	6	2	3	1	0	2	9	5
Richmond.....	5	7	4		2	0	2	3
Roanoke.....	1	2	4		0	2	0	1
West Virginia:								
Charleston.....	8	2	2		0	2	1	2
Wheeling.....	3	2	0		0	3	0	6
North Carolina:								
Raleigh.....	22	1	1		0	0	0	2
Wilmington.....	8	0	3		1	0	0	2
Winston-Salem.....	9	1	3	1	0	0	9	5
South Carolina:								
Charleston.....	3	1	2	62	0	0	0	7
Columbia.....	9	0	0		0	0	1	0
Georgia:								
Atlanta.....	18	4	5	25	2	0	6	11
Brunswick.....	0	0	0		0	0	1	0
Savannah.....	2	1	0	13	1	0	0	3
Florida:								
Miami.....	3	1	0		0	0	0	2
St. Petersburg.....		0			0			2
Tampa.....	6	2	0	1	1	2	12	3
EAST SOUTH CENTRAL								
Kentucky:								
Covington.....	0	0	4		0	0	0	0
Tennessee:								
Memphis.....		5						
Nashville.....	0	2	2		0	0	0	1
Alabama:								
Birmingham.....	4	3	2	9	4	3	4	6
Mobile.....	3	2	1	1	0	1	0	3
Montgomery.....	2	1	0			1	1	
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith.....	2	0	0			1	0	
Little Rock.....	1	2	2		1	0	2	1
Louisiana:								
New Orleans.....	2	13	20	6	8	32	0	20
Shreveport.....	8	2	3		0	0	0	5
Oklahoma:								
Oklahoma City.....	0	3	0	4	0	0	0	7
Tulsa.....	22	2	2			16	1	

City reports for week ended January 18, 1930—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
WEST SOUTH CENTRAL—contd								
Texas:								
Dallas	9	7	8	7	4	72	0	16
Fort Worth	10	3	3		0	0	0	6
Galveston	0	1	1		0	0	0	2
Houston	7	8	19		0	2	0	5
San Antonio	0	3	2		4	0	0	13
MOUNTAIN								
Montana:								
Billings	0	0	0		0	0	10	1
Great Falls	3	0	0		0	1	43	4
Helena	0	0	1		0	0	28	0
Missoula	0	1	0		0	0	0	1
Idaho:								
Boise	0	1	0		0	1	0	0
Colorado:								
Denver	57	11	3		3	3	8	15
Pueblo	12	2	1		0	0	12	0
New Mexico:								
Albuquerque	1	1	1		0	0	6	3
Arizona:								
Phoenix	2	0	0		0	2	3	2
Utah:								
Salt Lake City	34	4	1		0	23	11	7
Nevada:								
Reno	0	0	0		0	0	0	1
PACIFIC								
Washington:								
Seattle	10	4	1			1	43	
Spokane	17	2	1			1	0	
Tacoma	15	3	1		0	1	0	2
Oregon:								
Portland	23	12	4	4	1	3	11	12
Salem	0	0	2		0	0	7	0
California:								
Los Angeles	56	46	31	51	2	27	36	38
Sacramento	10	3	0	3	2	5	31	7
San Francisco	70	17	6	2	1	251	63	8
NEW ENGLAND								
Maine:								
Portland	2	8	0	0	0	0	0	26
New Hampshire:								
Concord	1	1	0	0	0	0	0	15
Manchester	2	0	0	0	0	0	0	24
Nashua	0	0	0	0	0	0	0	
Vermont:								
Barre	1	0	0	0	0	0	0	3
Burlington	1	0	0	0	0	0	0	3
Massachusetts:								
Boston	79	87	0	0	8	1	96	213
Fall River	4	2	0	0	1	0	9	29
Springfield	9	3	0	0	2	0	20	35
Worcester	12	22	0	0	1	1	7	41
Rhode Island:								
Pawtucket	2	1	0	0	0	0	3	13
Providence	11	14	0	0	3	1	5	73

City reports for week ended January 18, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
NEW ENGLAND— continued											
Connecticut:											
Bridgeport.....	12	7	0	0	0	2	0	0	0	1	37
Hartford.....	7	9	0	0	0	2	0	0	0	5	28
New Haven.....	9	10	0	0	0	2	0	0	0	13	45 Z
MIDDLE ATLANTIC											
New York:											
Buffalo.....	28	35	0	0	0	8	1	0	0	19	129
New York.....	271	183	0	0	0	97	9	2	1	46	1,526
Rochester.....	14	6	0	0	0	0	0	0	0	5	67
Syracuse.....	14	34	0	0	0	2	0	1	0	31	63
New Jersey:											
Camden.....	7	8	0	0	0	2	0	0	0	5	31
Newark.....	31	40	0	0	0	4	1	0	0	27	106
Trenton.....	5	18	0	0	0	2	1	0	0	0	46
Pennsylvania:											
Philadelphia.....	103	105	0	0	0	32	2	2	0	27	478
Pittsburgh.....	44	35	0	0	0	6	1	1	0	27	166
Reading.....	4	3	0	0	0	0	0	0	0	28	22
Scranton.....	5	8	0	0	0	0	0	0	0	2	-----
EAST NORTH CENTRAL											
Ohio:											
Cincinnati.....	21	22	1	6	0	11	0	0	0	6	128
Cleveland.....	46	58	0	0	0	12	1	3	0	96	197
Columbus.....	12	13	1	7	0	3	0	0	0	4	87
Toledo.....	16	11	0	6	0	7	0	0	0	3	77
Indiana:											
Fort Wayne ..	6	6	1	24	0	0	0	0	0	0	22
Indianapolis.....	12	14	7	2	0	3	0	0	0	19	92
South Bend.....	3	16	1	0	0	0	0	0	0	0	-----
Terre Haute.....	4	0	0	0	0	0	0	0	0	0	16
Illinois:											
Chicago.....	138	298	1	7	0	33	3	1	0	118	764
Springfield.....	4	0	0	1	0	0	0	0	0	7	17
Michigan:											
Detroit.....	107	134	2	7	0	22	1	0	0	57	292
Flint.....	13	18	1	4	0	0	0	0	0	18	28
Grand Rapids.....	14	12	0	0	0	0	1	0	0	4	31
Wisconsin:											
Kenosha.....	2	5	0	0	0	0	0	0	0	3	5
Madison.....	4	4	1	1	0	0	0	0	0	20	-----
Milwaukee.....	40	26	1	0	0	6	0	0	0	65	103
Racine.....	6	12	0	0	0	1	0	0	0	9	17
Superior.....	3	1	0	0	0	0	0	0	0	0	7
WEST NORTH CENTRAL											
Minnesota:											
Duluth.....	11	4	0	3	0	1	0	0	0	3	20
Minneapolis.....	60	18	4	0	0	2	1	0	0	7	118
St. Paul.....	33	26	1	0	0	2	-----	0	0	8	68
Iowa:											
Davenport ..	2	0	1	5	-----	-----	0	0	-----	3	-----
Des Moines.....	11	7	2	32	-----	-----	0	0	-----	0	54
Sioux City.....	1	3	1	3	-----	-----	0	0	-----	0	-----
Waterloo.....	2	5	1	51	-----	-----	0	0	-----	2	-----
Missouri:											
Kansas City.....	16	28	1	1	0	9	0	0	0	11	117
St. Joseph.....	3	0	0	1	0	0	0	0	0	3	27
St. Louis.....	46	18	1	2	0	12	0	4	0	4	216
North Dakota:											
Fargo.....	2	6	0	2	0	0	0	0	0	13	8
Grand Forks.....	0	0	0	3	-----	-----	0	0	-----	0	-----
South Dakota:											
Aberdeen.....	0	0	0	0	-----	-----	0	0	-----	0	-----
Sioux Falls.....	2	7	1	0	-----	-----	0	0	-----	0	7

City reports for week ended January 18, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
WEST NORTH CENTRAL—continued											
Nebraska:											
Omaha.....	5	11	1	1	0	1	0	1	0	2	51
Kansas:											
Topeka.....	3	6	0	0	0	0	0	1	0	3	18
Wichita.....	6	12	1	0	0	2	0	0	0	0	47
SOUTH ATLANTIC											
Delaware											
Wilmington....	6	4	0	0	0	2	0	0	0	0	31
Maryland											
Baltimore.....	35	37	0	0	0	13	2	0	0	21	214
Cumberland....	1	1	0	0	0	0	0	0	0	0	11
Frederick.....	0	2	0	0	0	0	0	0	0	0	2
District of Colum- bia											
Washington....	27	10	0	0	0	15	1	0	0	19	146
Virginia											
Lynchburg....	1	3	0	0	0	0	0	0	0	18	19
Norfolk.....	2	4	0	0	0	2	0	0	0	0	
Richmond.....	5	7	0	0	0	3	0	0	0	0	56
Roanoke.....	2	0	0	1	0	0	0	0	0	0	16
West Virginia											
Charleston....	1	1	0	0	0	1	0	1	0	22	16
Wheeling.....	2	3	0	0	0	0	0	0	0	3	27
North Carolina											
Raleigh.....	1	0	1	1	0	0	0	0	0	0	9
Wilmington....	0	2	0	0	0	1	0	0	0	4	13
Winston-Salem	1	3	1	1	0	4	0	0	0	9	20
South Carolina											
Charleston....	1	3	0	0	0	3	0	1	1	0	33
Columbia.....	1	0	0	0	0	1	0	0	0	3	17
Georgia											
Atlanta.....	4	17	2	0	0	4	0	1	0	1	89
Brunswick....	0	0	0	0	0	1	0	0	0	0	7
Savannah....	1	4	1	0	0	4	1	0	0	0	37
Florida											
Miami.....	0	4	0	0	0	4	1	0	0	1	31
St. Petersburg.	0		0		0	0		0	0		10
Tampa.....	1	2	0	0	0	1	1	0	0	0	26
EAST SOUTH CENTRAL											
Kentucky											
Covington....	2	2	1	0	0	0	0	0	0	0	10
Tennessee											
Memphis.....	7		1				1				
Nashville....	2	2	0	0	0	4	1	0	0	0	40
Alabama											
Birmingham..	5	6	3	0	0	6	0	1	0	2	82
Mobile.....	2	0	0	0	0	1	0	0	0	0	25
Montgomery..	1	2	0	0			1	1		1	
WEST SOUTH CENTRAL											
Arkansas											
Fort Smith....	1	3	0	0			0	0		0	
Little Rock....	2	1	0	0	0	1	0	0	0	0	
Louisiana											
New Orleans..	7	12	0	0	0	16	3	0	0	1	168
Shreveport....	1	3	1	0	0	0	0	0	1	0	25
Oklahoma											
Oklahoma City	2	8	1	11	0	1	0	0	0	0	33
Tulsa.....	2	3	0	6			0	0		4	
Texas:											
Dallas.....	6	7	1	2	0	3	0	1	0	1	75
Forth Worth..	3	2	0	0	0	2	1	0	0	0	31
Galveston....	1	0	0	0	0	1	0	0	0	0	14
Houston.....	3	4	1	6	0	5	0	0	0	0	50
San Antonio..	3	6	0	3	0	16	0	1	0	0	93

City reports for week ended January 18, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
MOUNTAIN											
Montana:											
Billings.....	1	1	0	0	0	0	0	0	0	0	13
Great Falls.....	2	17	2	0	0	0	0	0	0	0	13
Helena.....	0	0	0	0	0	0	0	0	0	2	1
Missoula.....	1	0	1	4	0	0	0	0	0	0	8
Idaho:											
Boise.....	2	0	0	0	0	0	0	0	0	0	4
Colorado:											
Denver.....	11	15	0	1	0	10	0	0	0	10	93
Pueblo.....	2	2	0	0	0	0	1	0	0	0	13
New Mexico:											
Albuquerque.....	2	1	0	0	0	9	0	0	0	0	19
Arizona:											
Phoenix.....	0	1	0	11	0	7	0	0	0	0	24
Utah:											
Salt Lake City.....	5	4	3	1	0	2	0	7	0	21	38
Nevada:											
Reno.....	0	0	0	0	0	1	0	0	0	0	4
PACIFIC											
Washington:											
Seattle.....	10	15	3	1			1	0		6	
Spokane.....	8	3	5	38			0	0		3	
Tacoma.....	3	5	3	4	0	0	0	0	0	8	22
Oregon:											
Portland.....	6	9	14	2	0	0	0	1	0	1	88
Salem.....	0	0	1	0	0	0	0	0	0	1	
California:											
Los Angeles.....	35	58	4	11	0	32	1	1	0	15	339
Sacramento.....	2	11	1	4	0	1	0	0	0	0	34
San Francisco.....	18	25	2	3	0	14	1	1	0	1	178

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomylitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Massachusetts:									
Boston.....	0	0	0	0	1	0	0	0	0
Worcester.....	0	0	1	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
Buffalo.....	1	0	0	0	0	0	0	0	0
New York.....	13	2	1	0	0	0	1	0	0
Rochester.....	0	0	1	0	0	0	0	0	0
Syracuse.....	1	0	0	0	0	0	0	0	0
New Jersey:									
Newark.....	1	0	1	0	0	0	0	0	0
Pennsylvania:									
Philadelphia.....	3	1	0	0	0	0	0	0	0
Pittsburgh.....	1	1	0	0	0	0	0	0	0
EAST NORTH CENTRAL									
Ohio:									
Cincinnati.....	1	1	0	0	0	0	0	0	0
Cleveland.....	8	1	0	0	0	0	0	0	0
Columbus.....	1	1	0	0	0	0	0	0	0
Indiana:									
Indianapolis.....	7	3	0	0	0	0	0	0	0
South Bend.....	4	0	0	0	0	0	0	0	0
Illinois:									
Chicago.....	11	7	0	0	0	0	0	0	0
Michigan:									
Detroit.....	23	11	0	1	0	0	1	0	0

City reports for week ended January 18, 1930—Continued

Divis.on, State, and city	Meningococcus meningitis		Lothargic encephalitis		Pellagra		Polioomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
EAST NORTH CENTRAL—CON.									
Wisconsin									
Milwaukee	2	2	0	0	0	0	0	0	0
Racine	1	1	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota									
Minneapolis	1	0	0	0	0	0	0	0	0
Missouri									
Kansas City	1	1	0	0	0	0	0	0	0
St. Joseph	2	0	0	0	0	0	0	0	0
St. Louis	4	1	0	0	0	0	0	0	0
North Dakota									
Fargo	1	1	0	1	0	0	0	0	0
Nebraska									
Omaha	3	0	0	0	0	0	0	0	0
Kansas									
Topeka	1	0	0	0	0	0	0	0	0
SOUTH ATLANTIC									
Delaware									
Wilmington	1	1	0	0	0	0	0	0	0
Maryland									
Baltimore	1	1	0	0	0	0	0	0	0
Virginia									
Norfolk	1	0	0	0	0	0	0	0	0
Richmond	0	1	0	0	0	0	0	0	0
West Virginia									
Charleston	1	0	0	0	0	0	0	0	0
North Carolina									
Winston-Salem	0	1	0	0	0	0	0	0	0
South Carolina									
Charleston	2	2	0	0	0	0	0	0	0
Columbia	0	2	0	0	0	0	0	0	0
Georgia									
Atlanta	1	3	0	0	0	0	0	0	0
Savannah	0	0	0	0	5	1	0	0	0
Florida									
Tampa	0	0	0	0	0	0	0	1	0
EAST SOUTH CENTRAL									
Kentucky									
Covington	0	1	0	0	0	0	0	0	0
Tennessee									
Nashville	1	0	0	0	0	0	0	0	0
Alabama									
Birmingham	0	0	0	0	0	1	0	0	0
Mobile	0	0	0	0	0	1	0	0	0
WEST SOUTH CENTRAL									
Oklahoma									
Oklahoma City	1	1	0	0	0	0	0	0	0
Texas									
Fort Worth	0	0	0	0	0	1	0	0	0
MOUNTAIN									
Montana									
Great Falls	0	0	0	1	0	0	0	0	0
Colorado									
Denver	3	2	0	0	0	0	0	0	0
New Mexico									
Albuquerque	1	0	0	0	0	0	0	0	0
Arizona									
Phoenix	0	1	0	0	0	0	0	0	0
Utah									
Salt Lake City	4	1	0	0	0	0	0	0	0
PACIFIC									
California									
Los Angeles	0	0	0	0	0	0	0	0	1
Sacramento	0	0	0	0	0	0	0	1	0

¹ Typhus fever: 2 cases, 1 case at Savannah, Ga., and 1 case at Tampa, Fla.

The following table gives the rates per 100,000 population for 98 cities for the 5-week period ended January 18, 1930, compared with those for a like period ended January 19, 1929. The population figures used in computing the rates are approximate estimates, authoritative figures for many of the cities not being available. The 98 cities reporting cases have an estimated aggregate population of more than 32,000,000. The 91 cities reporting deaths have more than 30,500,000 estimated population.

*Summary of weekly reports from cities, December 15, 1929, to January 18, 1930—
Annual rates per 100,000 population, compared with rates for the corresponding
period of 1928-29*¹

DIPHTHERIA CASE RATES

	Week ended—									
	Dec. 21, 1929	Dec. 22, 1928	Dec. 28, 1929	Dec. 29, 1928	Jan. 4, 1930	Jan. 5, 1929	Jan. 11, 1930	Jan. 12, 1929	Jan. 18, 1930	Jan. 19, 1929
98 cities.....	129	146	² 120	133	³ 117	148	⁴ 119	139	⁵ 111	⁶ 132
New England.....	170	159	² 125	170	136	163	156	183	122	177
Middle Atlantic.....	103	146	113	156	86	178	113	157	94	158
East North Central.....	167	166	166	133	³ 156	153	130	124	127	⁶ 107
West North Central.....	110	139	67	119	114	161	123	158	108	146
South Atlantic.....	107	122	79	103	86	111	83	118	103	99
East South Central.....	122	133	109	105	112	88	79	190	⁵ 61	171
West South Central.....	233	191	178	174	201	111	170	119	205	76
Mountain.....	61	71	35	18	52	70	19	87	51	61
Pacific.....	57	95	85	43	120	160	⁴ 95	67	94	104

MEASLES CASE RATES

98 cities.....	110	179	² 92	161	³ 130	196	⁴ 146	235	⁵ 209	⁶ 218
New England.....	93	800	² 98	676	125	964	112	873	157	700
Middle Atlantic.....	59	68	51	77	76	80	116	94	124	70
East North Central.....	94	251	97	206	³ 118	230	153	315	152	⁶ 303
West North Central.....	210	225	146	201	277	198	303	394	364	424
South Atlantic.....	39	52	30	73	132	114	118	66	167	81
East South Central.....	0	28	0	0	7	14	13	7	⁵ 45	34
West South Central.....	138	12	91	4	101	24	325	43	400	11
Mountain.....	139	204	78	106	197	383	146	427	240	853
Pacific.....	431	49	337	84	315	40	⁴ 54	115	676	56

SCARLET FEVER CASE RATES

98 cities.....	250	184	² 217	183	³ 250	195	⁴ 274	221	⁵ 280	⁶ 225
New England.....	312	241	² 314	308	377	296	397	317	363	294
Middle Atlantic.....	176	145	164	138	186	148	232	190	223	183
East North Central.....	354	233	311	220	³ 344	239	352	251	398	258
West North Central.....	235	241	179	262	248	258	216	283	290	248
South Atlantic.....	253	166	141	132	186	154	201	124	198	122
East South Central.....	48	154	75	182	125	197	106	156	⁵ 108	⁶ 232
West South Central.....	103	101	126	162	89	142	120	182	134	183
Mountain.....	583	27	322	27	378	113	481	157	335	183
Pacific.....	252	197	254	151	271	185	⁴ 348	282	276	377

¹ The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1930, 1929, and 1928, respectively.

² Hartford, Conn., not included.

³ South Bend, Ind., and Racine, Wis., not included.

⁴ San Francisco, Calif., not included.

⁵ Memphis, Tenn., not included.

⁶ South Bend, Ind., not included.

Summary of weekly reports from cities, December 15, 1929, to January 18, 1930—
Annual rates per 100,000 population, compared with rates for the corresponding
period of 1928-29—Continued

SMALLPOX CASE RATES

	Week ended—									
	Dec. 21, 1929	Dec. 22, 1929	Dec. 28, 1929	Dec. 29, 1929	Jan. 4, 1930	Jan. 5, 1930	Jan. 11, 1930	Jan. 12, 1929	Jan. 18, 1930	Jan. 19, 1929
98 cities.....	23	8	2 18	4	3 20	3	4 20	5	3 33	6 7
New England.....	0	2	2 0	2	0	0	0	2	0	0
Middle Atlantic.....	0	0	0	0	0	1	0	0	0	0
East North Central.....	31	4	20	3	1 16	6	27	3	36	6
West North Central.....	60	6	58	10	80	2	89	6	121	13
South Atlantic.....	0	0	2	2	2	0	0	2	5	6
East South Central.....	7	0	7	7	0	7	7	41	3 0	6 7
West South Central.....	36	41	28	12	15	4	43	16	41	46
Mountain.....	52	44	41	35	52	35	43	79	51	17
Pacific.....	117	56	80	15	107	5	233	7	144	17

TYPHOID FEVER CASE RATES

98 cities.....	5	4	2 4	5	3 2	4	3	4	3 6	6 4
New England.....	0	2	2 0	2	2	5	0	2	4	4
Middle Atlantic.....	4	4	3	4	1	3	3	4	3	4
East North Central.....	3	1	1	5	2	3	2	1	3	3
West North Central.....	8	2	2	6	0	0	2	0	11	2
South Atlantic.....	4	8	0	6	6	9	9	4	5	6
East South Central.....	0	7	34	7	7	0	7	7	18	21
West South Central.....	40	8	8	8	0	4	4	28	1 7	8
Mountain.....	17	9	0	9	9	9	0	0	60	0
Pacific.....	2	10	10	8	10	7	7	0	5	2

INFLUENZA DEATH RATES

91 cities.....	19	118	2 19	180	3 17	234	7 19	241	5 19	6 183
New England.....	9	14	2 10	14	7	48	0	100	9	141
Middle Atlantic.....	18	66	13	129	10	165	14	161	15	152
East North Central.....	14	124	13	201	15	238	12	236	17	143
West North Central.....	15	22.0	15	254	27	240	34	115	27	123
South Atlantic.....	13	134	26	281	16	343	31	395	22	288
East South Central.....	52	77	30	268	29	970	65	1,592	3 41	948
West South Central.....	69	212	97	379	79	596	64	467	65	320
Mountain.....	26	594	26	266	17	218	43	165	26	157
Pacific.....	30	212	20	182	13	131	20	79	15	75

PNEUMONIA DEATH RATES

91 cities.....	159	250	2 144	315	1 170	383	7 170	408	5 154	6 366
New England.....	158	159	2 46	159	163	161	170	323	115	442
Middle Atlantic.....	165	247	155	194	181	365	192	443	167	446
East North Central.....	117	255	116	382	113	416	122	414	109	280
West North Central.....	180	444	174	364	195	216	173	285	107	241
South Atlantic.....	184	228	152	344	221	360	177	465	170	474
East South Central.....	215	207	193	261	251	533	136	659	102	455
West South Central.....	243	254	243	408	329	670	210	528	237	383
Mountain.....	235	399	209	363	180	174	223	200	249	200
Pacific.....	144	169	108	169	118	148	232	134	169	119

¹ Hartford, Conn., not included.

² South Bend, Ind., and Racine, Wis., not included.

³ San Francisco, Calif., not included.

⁴ Memphis, Tenn., not included.

⁵ South Bend, Ind., not included.

⁶ Omaha, Nebr., and San Francisco, Calif., not included.

⁷ Omaha, Nebr., not included.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Week ended January 11, 1930.—The Bureau of Pensions and National Health of Canada reports cases of certain communicable diseases for the week ended January 11, 1930, as follows:

Province	Cerebro-spinal fever	Influenza	Polio-myelitis	Small-pox	Typhoid fever
Prince Edward Island ¹.....	.....	.....	.....	.....	.....
Nova Scotia ¹.....	.....	.....	.....	.....	7
New Brunswick.....	.....	.....	.....	.....	5
Quebec.....	3	.....	.....	.....	6
Ontario.....	2	4	1	4	.....
Manitoba.....	1	.....	.....	3	.....
Saskatchewan.....	.....	.....	.....	21	.....
Alberta.....	1	.....	2	2	.....
British Columbia.....	.....	.....	.....	2	1
Total.....	7	4	3	32	10

¹ No case of any disease included in the table was reported for the week.

Quebec Province—Communicable diseases—Week ended January 18, 1930.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended January 18, 1930, as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis.....	1	Ophthalmia neonatorum.....	1
Chicken pox.....	109	Scarlet fever.....	121
Diphtheria.....	46	Smallpox.....	4
Influenza.....	4	Tuberculosis.....	35
Measles.....	121	Typhoid fever.....	3
Mumps.....	121	Whooping cough.....	109

CUBA

Provinces—Typhoid fever—July–December, 1929.—The following table shows the number of cases of typhoid fever reported in the Provinces of Cuba during the period July–December, 1929, as compared with the similar period of 1928:

Typhoid fever cases reported in the Provinces of Cuba July-December, 1929 and 1928

Province	1929							July- Decem- ber, 1928
	July	August	Septem- ber	October	Novem- ber	Decem- ber	Total	
Havana.....	91	94	46	30	151	36	448	313
Santa Clara.....	57	118	62	46	39	22	344	290
Oriente.....	45	50	62	30	21	18	226	142
Pinar del Rio.....	21	64	39	11	13	10	158	117
Matanzas.....	85	20	3	9	10	2	129	125
Camaguey.....	29	23	19	16	15	7	109	95
Total.....	328	369	231	142	249	95	1,414	1,058

DENMARK

Communicable diseases—October, 1929.—During the month of October, 1929, cases of certain communicable diseases were reported in Denmark as follows:

Disease	Cases	Disease	Cases
Broncho-pneumonia.....	1,273	Paratyphoid fever.....	13
Cerebrospinal meningitis.....	8	Pneumonia.....	236
Chicken pox.....	33	Polomyelitis.....	72
Diphtheria and croup.....	535	Puerperal fever.....	19
Erysipelas.....	302	Scabies.....	1,118
German measles.....	11	Scarlet fever.....	236
Influenza.....	4,539	Tuberculo-sis.....	255
Jaundice.....	132	Typhoid fever.....	20
Lethargic encephalitis.....	12	Undulant fever ¹	51
Measles.....	350	Whooping cough.....	745
Mumps.....	891		

¹ Reported from the State serum institute.

NETHERLANDS

Smallpox (alastrim)—Week ended January 4, 1930.—During the week ended January 4, 1930, one case of smallpox (alastrim) was reported in the Netherlands. It occurred at Rotterdam.

PARROT DISEASE IN EUROPE

According to recent information there has been a mild epidemic of psittacosis, parrot disease, in Germany and some of the other countries of central Europe.

The first case was reported to have occurred in Berlin, subsequent to exposure to a parrot which had recently been imported from Brazil with a large number of other birds of the same species. Several other cases have also been reported from Berlin, Frankfurt, and Hamburg in Germany, Prague, Czechoslovakia, and Vienna, Austria. The mortality rate is not positively known, but it is believed to be about 50 per cent in Hamburg.

The symptoms are those of atypical pneumonia with great prostration. An intestinal form has also been observed. No etiological organism has been found.

It is understood that the German Government is maintaining a strict quarantine on all imported parrots under the supervision of capable veterinarians.

PERSIA

Tabriz—Scarlet fever.—A severe epidemic of scarlet fever has recently been reported at Tabriz, Persia. It was said that a conservative estimate placed the deaths at about 3,000.

PORTO RICO

San Juan—Communicable diseases—Five weeks ended January 11, 1930.—During the five weeks ended January 11, 1930, cases of certain communicable diseases were reported in San Juan, Porto Rico, as follows:

Disease	Cases	Disease	Cases
Colibacillosis.....	1	Malaria.....	11
Diphtheria.....	1	Ophthalmia neonatorum.....	2
Dysentery.....	1	Tetanus, infantile.....	1
Filariasis.....	1	Tuberculosis.....	57

TUNISIA

Tunis—Pneumonic plague.—According to information recently received, 50 cases of pneumonic plague were reported in Tunis during the period from December 23 to 29, 1929, and 1 new case of bubonic plague at Traka (Sfax district). The cases of pneumonic plague in Tunis all occurred among the southern tribe of Douriat Bedouins, of which there are approximately 800 representatives in Tunis. These 800 people were placed in an isolation hospital under observation, and no subsequent cases had been reported among the remaining population. In addition, strict sanitary measures are being taken in the city.

YUGOSLAVIA

Communicable diseases—December, 1929.—During the month of December, 1929, certain communicable diseases were reported in Yugoslavia as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax.....	38	7	Rabies.....	2	2
Cerebrospinal meningitis.....	15	10	Scarlet fever.....	1,729	286
Diphtheria and croup.....	840	153	Tetanus.....	8	3
Dysentery.....	95	22	Typhoid fever.....	637	84
Measles.....	833	6	Typhus fever.....	6	1

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

From medical officers of the Public Health Service, American consuls, International Office of Public Hygiene, Pan American Sanitary Bureau, health section of the League of Nations, and other sources. The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

CHOLERA

[C indicates cases, D, deaths, P, present]

[illegible]

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

CHOLERA—Continued

[C indicates cases, D, deaths; P, present]

Place	July 28- Aug. 24, 1929	Aug. 25- Sept. 21, 1929	Sept. 22- Oct. 19, 1929	Week ended—										Jan. 4, 1930
				November, 1929							December, 1929			
				Oct. 26, 1929	2	9	16	23	30	7	14	21	28	
India (Portuguese)	C	1	2	1										
Indo-China (see also table below):	D	1	1											
Pnompenh.....	C	3	3	61	8	7		1	2	1		2		
Saigon and Cholon.....	C	2	2	53	4	4		2	1	1		2		
Cochin-China.....	C	2		1					1					
Japan.....	C	2		34										
Kobe.....	C	2	9	3										
Osaka.....	C	5	41	14										
Shimonoseki.....	C	P	2											
Siam.....	C	180	26	9				2	1	4				
Siam.....	C	112	19	4				1	1	1				
Anthonang.....	C	10												
Ayudhya.....	D	3												
Bangkok.....	C	2		2										
Bangkok.....	C	9	10	4					2	3		1	2	3
Dhannapuri.....	D	3	5	2					1				1	
Dhannapuri.....	D			2										
Lobpuri.....	D			2										
Nagara Rajstina.....	D	2	3											
Nagara Rajstina.....	D	2	3											
Sridharmaraj Province.....	D	5		2										
Sridharmaraj Province.....	D	5		2										
Sridharmaraj Province.....	D	15												
Sridharmaraj Province.....	D	13												
On vessel:	C		3											
S. S. Shinsei at Shanghai	D													
S. S. Texas Maru, at Nagasaki, from Shanghai	C	1												
Indo-China (French) (see also table above):														
Annam.....	C	9	17	1										
Cambodia.....	C	186	35	38										
Cochin-China.....	C	315	60	45				121	100	43	2		41	
Laos.....	C	13	3	12				3		15			46	

PLAGUE

[C indicates cases, D, deaths; P, present]

Place	July 28- Aug. 24, 1929	Aug. 25- Sept. 21, 1929	Sept. 22- Oct. 19, 1929	Week ended—									
				November, 1929					December, 1929				
				2	9	16	23	30	7	14	21	28	January, 1930 4 11 18
Algeria:													
Algiers.....		2											
Philippineville.....													
Argentina:	3												
Rosario.....				1	1								
Plague-infected rats.....				1	1								
Santa Fe.....													
Tucuman.....				1									
Azores: Ponta Delgada.....													P
Belgian Congo: Djugu.....	1	2											
British East Africa (see also table below): Uganda.....	840	528	405	110	71	62	72	68	2				
	730	556	343	101	84	59	66	63					
Ceylon:													
Colombo.....	1	1	3							2	2		1
	1	7	1							1	1		1
Plague-infected rats.....	1	8	1							1			
Galle.....		6											
Kandy.....	1	1											
	1	1											1
Chile: Antofagasta.....													
China:													
Amoy.....	P	P	P										
Foochow.....	P												
Hong Kong.....	1	1	1										
	1	1											
	3	2											
Plague-infected rats.....	16												
Manchuria—Fungliao District.....													
Dutch East Indies: Java—	122	180	131	61	66	77	89	96	80				
Batavia and West Java.....	121	178	128	60	65	76	86	97	80				
								3	2				
Plague-infected rats.....													
Celebes—Makassar.....													
Plague-infected rats.....													
Plague-infected rodents.....													
East Java and Madura.....	3	7	60	35	3	1	2						2
	3	7	60	36	3	1	3						

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE—Continued

[C indicates cases; D, deaths; P, present]

Place	July 28- Aug. 24, 1929	Aug. 25- Sept. 21, 1929	Sept. 22- Oct. 19, 1929	Week ended—												
				Oct. 6, 1929	November, 1929					December, 1929				January, 1930		
					2	9	16	23	30	7	14	21	28	4	11	18
Dutch East Indies: Java—Continued.																
Surabaya.....	C	3	7	4				1								
.....	D	3	7	2				1								
Ecuador (see table below).																
Egypt:																
Alexandria.....	C	5	11	13	4	4	2	1	1	1	2	2	2	3		
.....	D	1	5	3	3	1	1	1	1	1	1	1	1	4		
Asiout.....	D	1		1												
Assuan.....	D		1													
Behaira.....	C															
Beni Suef.....	C	1	1				1	1								
Dakhleh.....	C															
.....	D															
Gharbieth.....	D	1	2													
.....	D	1	2													
Minieh.....	D	1			4		1	1								
.....	D	1			4											
Port Said.....	C	6	2	2												
.....	D	6	3	1												
France: Paris.....	D															
Greece (see also table below):																
Messinia.....	C						2									
Patras.....	C		3	3			1	1								
Piræus.....	C		3													
Pyrgos.....	C							6	2							
Hawaii: Hamakua—Kukuihaele—Plague-infected rats.																
India:	C	4,221	6,326	8,334	2,291	1,938	2,079	1,937								
.....	D	2,266	3,354	4,385	1,132	1,033	1,066									
Bassein.....	C	13	4													
.....	D	14	4													
Bombay.....	C	1	1	1	1											
.....	D	1	2													
Plague-infected rats.....	C	10	28	32	6	3	10	12	11	9	7	3	8		9	
Madras Presidency.....	C	215	186	139		27	68	57	91	85	42		50		14	
.....	D	112	107	64		14	82	34	36	45	10		21		6	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE—Continued

[C indicates cases; D, deaths; P, present]

Place	July, 1929	Aug., 1929	Sept., 1929	Oct., 1929	No. ven-ber, 1929	De-ber, 1929	Place	July, 1929	Aug., 1929	Sept., 1929	Oct., 1929	No. ven-ber, 1929	De-ber, 1929
British East Africa (see also table above):							Madagascar—Continued.						
Kenya	67	19	28	146	157	15	Moromanga Province	C	1	2	5	27	
Uganda	1,203	866						D	1	2	4	27	
	1,973	749					Tamatave Province	D	1		7	5	
Ecuador: Guayaquil	C	1		12	14			D	2		1	4	
Plague-infected rats		1	3	4	3		Tananarive Province	D	16	36	141	141	
Greece (see also table above)	D	4	3	5	9			D	16	34	135	132	
		2	2	2	2	1	Peru	D	11	5			
Indo-China (see also table above)	C	1			1			D	3	2			
Madagascar (see also table above)	C	37	48	155	203		Sengal						
	C	13	40	152	193		Baol	C	22	32	42	45	5
Amboitra Province	C	9	9	9	2			D	9	13	24	13	2
Antistrabe Province	D	9	9	9	2		Dakar	D	62	76	26	3	16
Ieay Province	D	2	1	13	17		Louga	D	45	65	17	2	8
	D	2	1	13	17			D	59	121	108	41	5
	D			5			Rufisque	D	39	70	64	24	1
Malunga Province	D	2						D	22	7	1		
	D						Thies	D	7	53	34	3	
Miarinarivo	D	2	11	12				D	61	33	28	3	
	D		11				Tivaouane	D	161	198	119	41	8
	D		11	11				D	96	119	55	21	4

SMALLPOX

Place	Week ended—											
	July, 1929				November, 1929				December, 1929			
	Aug. 23-25, 1929	Aug. 25-27, 1929	Sept. 19, 1929	Sept. 22, 1929	Oct. 26, 1929	Nov. 2, 1929	Nov. 9, 1929	Nov. 16, 1929	Nov. 23, 1929	Nov. 30, 1929	Dec. 7, 1929	Dec. 14, 1929
Algeria:												
Algiers	C	1		1		1	1	1	3	1	1	1
Oran	C		5									
Arabia: Aden	C	38	4	3	1	1			1	1	2	
	C	37	1	2	3		2					
Brazil: Porto Alegre	C											
British East Africa (see also table below):												
Tanganyika	C	5	9	3	1	7	18	15	6			
	D		1				4		3			

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX--Continued

[C indicates cases; D, deaths; P, present]

Place	Week ended—																	
	July		Aug.		Sept.		November, 1929						December, 1929				January, 1930	
	23- 24, 1929	25- 26, 1929	23- 24, 1929	25- 26, 1929	23- 24, 1929	25- 26, 1929	2	9	16	23	30	7	14	21	28	4	11	18
Dutch East Indies—Continued.																		
Sanggi Islands.....	C																	
Sumatra—Medan.....	C																	
Egypt:																		
Alexandria.....	C	3	3					1										
Suez.....	C									4				1				
Greece:																		
Great Britain.....	C																	
England and Wales.....	C	502	496	490	131	168	172	172	279	198	252	265	195	232	248	335		
Ashlon under Lyne.....	C	3		2						1								
Bradford.....	C		8	6	6	4	8	1	7	1	9	4	3	4	2	1	1	
Cardiff.....	C			1														
Leeds.....	C		2															
London.....	C	78	144	156	29	44	47	54	84	60	72	105	99	83	129	169		
London and Great Towns.....	C	297	304	332	83	115	121	123	214	148	208	213	159	180	186	274		
Newcastle-on-Tyne.....	D		2	1														
Stoke-on-Trent.....	C	18	15	7	3	1	5		1			1			2	10		
Greece: Patras.....	C																	
Bledjaz.....	C	11	27	5		4	1	2	2	2	2		1					
Honduras: Choluteca.....	D	19																
India:																		
Bombay.....	C	5,481	4,199	3,111	838	681	837	961										
Calcutta.....	D	1,418	954	661	169	143	201	217										
Cochin.....	D	63	37	16	6	1	3	2	9	8	12	13	19	29	25			
Karachi.....	D	31	24	11	3	1	3	1	1	5	4	4	11	12	15			
Madras.....	D	31	21	12	1	3	2	2	7	6	7	34	7	18	20			
Moulmein.....	D	20	16	11	1	2			6	5	6	22	5	23	24			
Negapatam.....	D	4	13	13	15	16	28	34	29	47	245	66	67	71	51			
Rangoon.....	D		1	10	5	2	2	2	10	5	51	6	6	3	3			
Vizagapatam.....	D	15	27	10	2	2	2	3	3	2	1	1	2	3	8			
	D	7	16	3						2	2							
	D	89	82	79	15	11	21	11	22	18	14	10	27	25	10			
	D	22	21	8	1	3	4	3	2	2	5	2	7	5	2			
	D	11	5	3	2	1	1	1	1	1	1	3	3	1	1			
	D	5	2	2	1													
	D	1	3	1	1		1			1								
	D	1	1	1	1													
	D	1	1	1	1				1				1					
	D	1	1	1	1									1				
	D	1	1	1	1										1			

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

[illegible]

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER—Continued

[C indicates cases; D, deaths, P, present]

Place	Week ended—													
	July 24, Aug. 24, 1929	Aug. 31, Sept. 10, 1929	Sept. 24, Oct. 4, 1929	November, 1929						December, 1929			January, 1930	
				Oct. 28, 1929	2	9	16	23	30	7	14	21		28
Palestine.....	C	1	5	3										
Persia.....	D	23				2		1						
Peru—Arequipa (see table below).														
Poland.....	C	48	26	31	26	8	15	13	17	16	19	22	18	15
Portugal.....	C	7	4	3	1						3	4	2	1
Oporto.....	C	1				1		2	2	1	3	2		
Rumania.....	C	9	39	25	5	2	1	11	8	11	32	52		
Russia.....	C	1	1	4	5	1		1			1	9		
Tunisia.....	C	4			1				1	1	1	1		2
Turkey (see table below).														
Union of South Africa.....	C	1	P	P	P	P	P	P	P	P	P	P		
Cape Province.....	C		P	P	P									
Natal.....	C		P	P	P									
Orange Free State.....	C		P	P	P									
Transvaal.....	C		P	P	P									
Yugoslavia (see table below)														

Place	July, 1929	August, 1929	Septem- ber, 1929	Octo- ber, 1929	No- vem- ber, 1929	De- cem- ber, 1929	Place			July, 1929	August, 1929	Septem- ber, 1929	Octo- ber, 1929	No- vem- ber, 1929	De- cem- ber, 1929
							Peru: Arequipa.	Turkey.	Yugoslavia.						
Chosen: Seoul.....					3		D		1			1	2		
Czechoslovakia.....					1		D					4	10	2	
France.....						1	D					1	1		
Greece: Athens.....		6	3	7			D								
Latvia.....		1	3	6	4		D							5	
Lithuania.....		7	7	1	1				3	7	2				
D	10	1	1	1	1				1						

Press reports show that 10 deaths from typhus fever have occurred in Sao Paulo, Brazil, from Nov. 3 to 30, 1929.

YELLOW FEVER

Since August 1, 1929, the following cases of yellow fever have been reported. Nichteroy, Brazil, 1 case; Rio de Janeiro, Brazil, 2 cases; Monrovia, Liberia, 1 case. All occurred during the month of September, 1929.

x

UNITED STATES TREASURY DEPARTMENT

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FEBRUARY 14 - - 1930

SPECIAL ARTICLES

Sickness Among Industrial Employees, Second and Third
Quarters, 1929

History Taking in the Early Diagnosis of Tuberculosis



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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

ASST. SURG. GEN. R. C. WILLIAMS, *Chief of Division*

THE PUBLIC HEALTH REPORTS are issued weekly by the United States Public Health Service through its Division of Sanitary Reports and Statistics, pursuant to acts of Congress approved February 15, 1893, and August 14, 1912.

They contain: (1) Current information of the prevalence and geographic distribution of preventable diseases in the United States in so far as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other communicable diseases throughout the world. (2) Articles relating to the cause, prevention, or control of disease. (3) Other pertinent information regarding sanitation and the conservation of the public health.

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SICKNESS AMONG INDUSTRIAL EMPLOYEES IN THE SECOND AND THIRD QUARTERS OF 1929¹

By DEAN K. BRUNDAGE, *Associate Statistician, United States Public Health Service*

In the first three months of 1929 an influenza epidemic caused a marked increase (41 per cent) in the frequency of absence from work for more than one week on account of sickness as compared with the same quarter of the preceding year among a group of about 106,000 industrial employees.² Following the epidemic the incidence rate of illness in this group of employees fell to a level about 10 per cent below that prevailing in the second quarter of 1928. During the first 11 months of 1928 the amount of disability appears to have been about average so that comparisons are made with a normal or average year up to December, 1928, when the consequences of the epidemic began to be reflected in an increased rate for disabilities of 8 days and longer. The favorable health record for the second quarter of 1929 was due to a decreased incidence of respiratory diseases. Nonrespiratory diseases as a whole occurred at practically the same rate as in the second quarter of 1928. Among the respiratory diseases influenza and grippe fell off 50 per cent, bronchitis 11 per cent, and pneumonia 5 per cent. Of the respiratory diseases only those affecting the pharynx and tonsils appear to have been more prevalent in the spring of 1929 than in the preceding spring.

The greater-than-seasonal decline in the respiratory disease rate continued into the third quarter of 1929, although sickness and non-industrial accidents as a whole occurred 5 per cent oftener than in the corresponding period of the year before. Nonindustrial injuries were 26 per cent more frequent and nonrespiratory diseases occurred 8 per cent oftener than during July, August, and September, 1928. Diseases of the pharynx and tonsils occurred at the same rate in the third quarter of each of the two years, but influenza and grippe declined 20 per cent and bronchitis 14 per cent compared with the frequency of these diseases, respectively, in the third quarter of 1928. The pneumonia rate increased in spite of a decline in influenza with which it usually fluctuates.

¹ From the Office of Industrial Hygiene and Sanitation in cooperation with the Office of Statistical Investigations, United States Public Health Service.

² Cf. "Sickness Among Industrial Employees During the First Three Months of 1929," Public Health Reports, Sept. 13, 1929, Reprint No. 1316.

TABLE 1.—Frequency of disability lasting 8 consecutive days or longer in specified months of 1929 compared with the corresponding months of 1928 among the male employees of 13 industrial establishments which reported their cases to the United States Public Health Service during both years

Diseases causing disability (Numbers in parentheses are disease title numbers from the International List of the Causes of Death, third revision, Paris, 1920)	Annual number of disabilities per 1,000 men in—		Per cent increase or decrease in rate in 1929	Number of disabilities in—	
	1929	1928		1929	1928

SECOND QUARTER (APRIL, MAY, JUNE)					
Sickness and nonindustrial injuries.....	104.2	116.6	-11	2,860	2,087
Nonindustrial injuries.....	10.9	10.5	+4	300	270
Sickness.....	93.3	106.1	-12	2,560	2,717
Respiratory diseases.....	36.0	48.7	-26	989	1,248
Influenza and grippé (11).....	13.8	27.3	-50	379	699
Bronchitis (99).....	4.9	6.5	-11	133	141
Pneumonia, all forms (100, 101).....	3.6	3.8	-5	99	96
Diseases of the pharynx and tonsils (100).....	7.4	5.7	+30	204	147
Other respiratory diseases (31, 97, 98, 102-107).....	6.3	6.4	-2	174	165
Nonrespiratory diseases.....	57.3	57.4	0	1,571	1,469
Diseases of the stomach, diarrhea, and enteritis (111, 112, 114).....	6.4	6.5	-2	176	166
Other diseases of the digestive system (108, 110, 115-127).....	9.8	9.2	+7	270	236
Diseases of the circulatory and genito-urinary systems and annexa (87-96, 128-142).....	9.3	8.0	+16	251	206
Diseases of the nervous system (70-84).....	5.2	5.3	-2	142	136
Diseases of the skin (151-154).....	4.7	4.8	-2	128	122
Epidemic and endemic diseases, except influenza (1-10, 12-25).....	2.9	4.8	-40	79	123
Rheumatism, acute and chronic (51, 52).....	6.6	7.2	-8	181	185
Lumbago and other diseases of the organs of locomotion (158).....	3.7	4.3	-14	102	110
Ill-defined and unknown causes (205).....	3.0	1.7	+77	83	43
All other diseases (26-30, 32-37, 41-50, 53-69, 85, 86, 155-157, 159, 164).....	5.7	5.6	+2	156	142
Average number of males covered in the records.....				110,069	103,055

THIRD QUARTER (JULY, AUGUST, SEPTEMBER)					
Sickness and nonindustrial injuries.....	88.3	63.8	+5	2,478	2,178
Nonindustrial injuries.....	13.2	10.5	+26	371	274
Sickness.....	75.1	73.3	+2	2,107	1,904
Respiratory diseases.....	22.7	24.8	-8	637	644
Influenza and grippé (11).....	7.4	9.3	-20	208	241
Bronchitis (99).....	3.2	3.7	-14	91	95
Pneumonia, all forms (100, 101).....	1.6	1.2	+33	44	30
Diseases of the pharynx and tonsils (100).....	4.8	4.8	0	135	126
Other respiratory diseases (31, 97, 98, 102-107).....	5.7	5.8	-2	159	152
Nonrespiratory diseases.....	52.4	48.5	+8	1,470	1,260
Diseases of the stomach, diarrhea, and enteritis (111, 112, 114).....	7.0	6.0	+17	196	156
Other diseases of the digestive system (108, 110, 115-127).....	10.3	8.7	+18	290	227
Diseases of the circulatory and genito-urinary systems and annexa (87-96, 128-136).....	8.6	6.7	+28	242	174
Diseases of the nervous system (70-84).....	5.2	4.8	+8	146	125
Diseases of the skin (151-154).....	4.0	5.6	-18	129	144
Epidemic and endemic diseases except influenza (1-10, 12-25).....	.8	.9	-11	21	24
Rheumatism, acute and chronic (51, 52).....	4.4	6.1	-28	124	157
Lumbago and other diseases of the organs of locomotion (158).....	3.8	3.5	+9	105	92
Ill-defined and unknown causes (205).....	2.6	1.8	+44	74	47
All other diseases (26-30, 32-37, 41-50, 53-69, 85, 86, 155-157, 159, 164).....	5.1	4.4	+16	143	114
Average number of males covered in the records.....				111,328	103,409

The sickness statistics presented above are based on reported cases of sickness and nonindustrial accidents causing disability for more than one week for which sick benefits were paid in 13 large industrial establishments having a combined male working force of more than 100,000. Only those establishments are included which reported in

both years, so that as nearly the same population as is possible to obtain was under observation in the two periods. The sickness rates among female employees are not presented. With but one exception the establishments are located in the region lying north of the Ohio and Potomac Rivers and east of the Mississippi.

In general, the morbidity picture corresponds with the mortality record of the industrial population as shown for 19,000,000 industrial policyholders of the Metropolitan Life Insurance Company. After the epidemic in the early part of the year, which caused a large number of deaths from influenza and pneumonia and intensified the death rates from heart disease and certain chronic diseases, the second quarter of 1929 registered the lowest death rate in 8 years for this three months' period, and mortality in the third quarter of 1929 was the lowest for that period in seven years.³

HISTORY TAKING IN THE EARLY DIAGNOSIS OF PULMONARY TUBERCULOSIS

By G. H. FAGET, *Passed Assistant Surgeon, United States Marine Hospital, Fort Stanton, N. Mex.*

There is little doubt that a well-taken history in any disease is helpful in arriving at a correct diagnosis. Perhaps this is truer in pulmonary tuberculosis than in most diseases. In going over the histories taken at other hospitals of patients admitted to the United States Marine Hospital at Fort Stanton, N. Mex., it is evident that a systematic method was not always followed. The result is that frequently valuable data have been overlooked. This becomes obvious when checking up the histories of these same patients after admission at Fort Stanton. However, even here the data are not always satisfactorily obtained by the system which has heretofore been employed.

A carefully recorded history does not have the importance at this hospital that it does at a general hospital of the Public Health Service where all classes of diseases are treated. Here only tuberculous patients are admitted, and the diagnosis has been made prior to entrance. However, it is important to get a clear story of the patient's symptoms before admission. This will be of assistance not only in the classification of his pathology and prognosis but also in his proper treatment. It is also valuable to have a concise subjective history, and the classification of the National Tuberculosis Association requires it. With the main classification based upon the degree of involvement of the lungs as arrived at by the physical and X-ray examination, the subdivisions into classes A, B, and C, signifying the type of activity, demand an acquaintance with the constitutional

³ Statistical Bulletin, Metropolitan Life Insurance Co., October, 1929, Vol. X, No. 10.

symptoms. In the entrance diagnosis this must depend largely upon the accuracy of the history obtained from the patient.

The history as taken in the other marine hospitals is of great primary significance in diagnosis. Owing to carelessly taken data some cases of early pulmonary tuberculosis may be overlooked. Then it is not until a subsequent admission into a hospital of the Public Health Service that a diagnosis is made, and in the meanwhile the disease has progressed. It is in the out-patient offices that these mistakes occur most often. Some authorities hold that a well-taken history in early cases will more often lead to a correct diagnosis than the ordinary physical examination. Certainly a good history is worth more than a poor physical examination. If it will but give suspicion of the existence of tuberculosis much has been accomplished. Then, even if the physical examination is negative or indefinite, an X ray of the chest may be called for and reveal the disease. Repeated examinations of the sputum should also be made. In this way some early cases may be detected in time to be benefited by treatment and the value of the carefully taken history thus sustained.

With all this in mind, the proper recording of the onset of the patient's illness and the orderly sequel of his symptoms become essential. A routine procedure should be followed. A list of the prominent complaints in early phthisis should be constantly before the admitting officer to use until he becomes thoroughly familiar with it and there is no danger of his forgetting properly to question the patient. The doctor will thus help the patient to remember data temporarily forgotten or considered unimportant.

A tabulation of early and also late symptoms is given in the accompanying table. Some of these will be mentioned by all patients who have pulmonary tuberculosis. They appear in all good text books upon the subject, but are here listed in their most common order of appearance. With this list before him it should not be difficult for a physician by pertinent questioning to obtain clear-cut statements from a patient slow or uncertain in his voluntary statements.

Tuberculosis should be suspected in all patients presenting two or more of the following symptoms, and such patients should be carefully observed and examined until the diagnosis is made or tuberculosis is excluded.

While an attempt was made to tabulate the symptoms according to their occurrence in the majority of cases, it must be remembered that there can be no set rule here. Some symptoms listed near the bottom of the table may be the first to appear, as, for instance, a pulmonary hemorrhage. On the other hand, one given near the top may never make its appearance or occur late in a particular case, as, for example, pain in the chest.

Tabulation of symptoms

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. Acute respiratory cold without coryza. 2. Protracted convalescence from other diseases. 3. Cough persisting for more than two weeks. 4. Expectoration following cough. 5. Pain in the chest. 6. Fever. 7. Rapid pulse. 8. Shortness of breath. 9. Irritability. 10. Early morning fatigue. 11. Loss of "pep" or ambition. 12. Loss of weight. 13. Loss of appetite. | <ol style="list-style-type: none"> 14. Dyspepsia. 15. Pleurisy with or without effusion. 16. Night sweats. 17. Hemoptysis of more than a tea-spoonful. 18. Loss of strength. 19. Hoarseness. 20. Vomiting after spell of coughing. 21. Symptoms of extrapulmonary lesions: <ol style="list-style-type: none"> a. Laryngeal. b. Intestinal. c. Fistula in ano. d. Genito-urinary. e. Bones and joints. |
|--|---|

We must remember that active tuberculosis always manifests itself by clinical symptoms of toxemia, and so a well-taken history will obtain the particular complaints from each patient. Definite or indefinite physical findings can not always be relied upon in the diagnosis of early cases as much as can these symptoms. Complaints of cough, fever, expectoration, night sweats, languor, or hemoptysis can not be overlooked. One or more of the symptoms given in the table above will be found in a carefully taken history as soon as the patient becomes actively phthisical. A diagnosis can then be made from the clinical history alone and the exact localization of the pathology left for a more expert physical or X-ray examination.

According to Fishberg the symptomology is of the greatest significance in making an early diagnosis. He says: "The symptomology of tuberculosis is of the utmost importance and it can be ascertained by any practicing physician; and its bearing on the presence or absence of active phthisis especially in doubtful cases is of more significance than indefinite physical signs. There may be active tuberculosis without physical signs revealing themselves even to the best trained specialist, and many of the signs of apical involvement are found in healthy persons. But there is no active tuberculosis without constitutional symptoms. This is an axiom which can not be repeated too often."

The value of the carefully taken history can not be exaggerated. If the plan given above is adopted generally there should be fewer mistakes in the recognition of the early case and more patients would be sent to the sanatoria before the disease has reached an advanced stage.

If this paper should serve in clearing up the diagnosis in only a few of these doubtful early cases, its purpose will have to some extent

been accomplished and its publication justified. There is nothing new in it, but the fact that greater stress should be placed upon the recognition of the early symptoms of tuberculosis as an aid in making a diagnosis; and the early diagnosis in this disease is recognized as half of the cure.

COURT DECISION RELATING TO PUBLIC HEALTH

City ordinance prohibiting the keeping of swine in city between certain dates held void.---(Kansas City, Mo., Court of Appeals; *Kays v. City of Versailles et al.*, 22 S. W. (2d) 182; decided Dec. 2, 1929.) An ordinance of the city of Versailles, a 4th-class city, provided as follows:

It shall be unlawful for any person, firm, or corporation to keep any swine within the corporate limits of the city of Versailles, Missouri, from and including April 1st in each year to and including October 15th in such year.

Section 8472 of the 1919 Revised Statutes authorized 4th-class cities to regulate or prohibit the running at large of live stock including hogs. Section 8477 authorized such cities to regulate and suppress pigpens and to pass ordinances for the prevention of nuisances and their abatement.

The plaintiff kept 29 hogs in an inclosure of 4½ acres of rough pasture land. He brought suit to enjoin the enforcement of the above-mentioned ordinance and, from an adverse judgment, the defendants appealed. The court of appeals held that the ordinance, attempting to prohibit the keeping of swine anywhere in the city, was void, as the keeping of hogs was not a nuisance per se and the city was not empowered by statute or charter to prohibit the keeping of animals in the city when such keeping was not a nuisance per se. The fact that hogs were prohibited in the city only from April 1st to October 15th did not render the ordinance valid on the theory that, because it did not in terms prohibit their keeping entirely, it was merely a regulatory ordinance. The court said that the right to have hogs in the city was so circumscribed by the ordinance as to make it a wholly unreasonable regulation if not a prohibition.

The city attempted to uphold the ordinance on the theory that the plaintiff was keeping a pigpen which, under section 8477 of the statutes, could be suppressed by the city. But the court held (a) that the ordinance, while general enough to include pigpens, was not aimed at such pens but prohibited the keeping of hogs at any place in the city between the dates specified, and (b) that, under the circumstances, it was apparent that the plaintiff was not keeping a pigpen.

DEATHS DURING WEEK ENDED FEBRUARY 1, 1930

Summary of information received by telegraph from industrial insurance companies for the week ended February 1, 1930, and corresponding week of 1929. (From the Weekly Health Index February 5, 1930, issued by the Bureau of the Census, Department of Commerce)

	Week ended Feb. 1, 1930	Corresponding week, 1929
Policies in force.....	75, 447, 332	73, 098, 660
Number of death claims.....	15, 531	20, 175
Death claims per 1,000 policies in force, annual rate.....	10. 7	14. 4

Deaths from all causes in certain large cities of the United States during the week ended February 1, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index February 5, 1930, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Feb. 1, 1930		Annual death rate per 1,000, corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Feb. 1, 1930 ¹
	Total deaths	Death rate ¹		Week ended Feb. 1, 1930	Corresponding week, 1929	
Total (64 cities).....	8, 116	14. 3	16. 7	739	870	² 65
Akron.....	48			9	7	82
Albany.....	37	16. 0	27. 3	2	4	44
Atlanta.....	87	17. 8	20. 6	7	12	74
White.....	45			5	7	159
Colored.....	42	(³)	(³)	2	5	32
Baltimore.....	222	13. 9	16. 8	19	26	65
White.....	167			11	21	47
Colored.....	55	(³)	(³)	8	5	129
Birmingham.....	67	20. 4	17. 6	9	6	84
White.....	42			5	3	77
Colored.....	45	(³)	(³)	4	3	95
Boston.....	222	14. 5	26. 7	30	31	85
Bridgeport.....	35			3	4	51
Buffalo.....	146	13. 7	18. 3	17	22	76
Cambridge.....	32	13. 4	24. 9	2	4	37
Camden.....	42	16. 2	14. 6	3	8	54
Canton.....	43	19. 2	12. 5	6	4	149
Chicago.....	755	12. 5	12. 6	68	74	60
Cincinnati.....	165			16	10	95
Cleveland.....	218	11. 3	11. 8	23	25	69
Columbus.....	95	16. 6	18. 8	10	13	98
Dallas.....	78	18. 7	16. 0	5	8	
White.....	58			5	6	
Colored.....	20	(³)	(³)	0	2	
Dayton.....	52	14. 7	14. 7	3	3	44
Denver.....	80	14. 2	20. 4	1	16	10
Des Moines.....	25	8. 6	14. 1	1	2	17
Detroit.....	329	12. 4	13. 3	52	48	80
Duluth.....	30	13. 4	14. 3	2	3	54
El Paso.....	36	15. 0	28. 8	3	13	
Erie.....	33			4	3	85
Fall River.....	33	12. 8	24. 8	8	2	183
Flint.....	44	15. 4	8. 1	12	3	140
Fort Worth.....	49	15. 0	12. 8	6	9	
White.....	41			5	9	
Colored.....	8	(³)	(³)	1	0	
Grand Rapids.....	38	12. 1	12. 7	2	6	30
Houston.....	96			14	9	
White.....	55			11	7	
Colored.....	41	(³)	(³)	3	2	
Indianapolis.....	134	18. 3	18. 0	7	4	52
White.....	113			6	3	52
Colored.....	21	(³)	(³)	1	1	54
Jersey City.....	76	12. 2	18. 0	7	14	61
Kansas City, Kans.....	32	14. 1	16. 7	6	2	142
White.....	27			6	2	159
Colored.....	5	(³)	(³)	0	0	0
Kansas City, Mo.....	119	15. 9	18. 1	13	7	101

See footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended February 1, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929—Continued

City	Week ended Feb. 1, 1930		Annual death rate per 1,000, corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Feb. 1, 1930 ¹
	Total deaths	Death rate ¹		Week ended Feb. 1, 1930	Corresponding week, 1929	
Knoxville.....	38	18.8	5.9	4	2	94
White.....	28			4	2	104
Colored.....	10	(²)	(²)	0	0	0
Los Angeles.....	292			16	24	49
Louisville.....	109	17.3	16.0	4	11	35
White.....	83			4	9	40
Colored.....	26	(²)	(²)	0	2	0
Lowell.....	38			5	1	119
Lynn.....	26	12.9	19.3	2	1	51
Memphis.....	77	21.1	21.4	8	8	95
White.....	34			4	5	74
Colored.....	43	(²)	(²)	4	3	135
Milwaukee.....	125	12.0	14.9	18	21	91
Minneapolis.....	95	10.9	11.1	4	4	26
Nashville.....	70	26.1	19.4	5	3	77
White.....	39			2	3	41
Colored.....	31	(²)	(²)	3	0	190
New Bedford.....	19			2	6	51
New Haven.....	51	14.2	18.6	2	5	39
New Orleans.....	194	23.6	19.7	24	13	139
White.....	112			8	6	71
Colored.....	82	(²)	(²)	16	7	269
New York.....	1,610	14.0	19.0	140	182	59
Bronx borough.....	221	12.1	15.4	17	17	40
Brooklyn borough.....	549	12.4	18.4	58	67	62
Manhattan borough.....	643	19.1	24.6	51	77	84
Queens borough.....	168	9.6	11.8	12	16	35
Richmond borough.....	39	13.5	25.6	2	5	37
Newark, N. J.....	124	13.7	14.5	11	15	58
Oakland.....	68	12.9	12.7	2	1	24
Oklahoma City.....	35			3	1	59
Omaha.....	87	20.4	15.4	7	6	80
Paterson.....	30	10.8	19.1	4	4	70
Philadelphia.....	497	12.6	15.5	31	64	46
Pittsburgh.....	220	17.0	16.5	25	20	92
Portland, Oreg.....	85			2	4	25
Providence.....	84	15.3	21.1	3	8	28
Richmond.....	58	15.6	20.9	10	10	148
White.....	29			5	4	112
Colored.....	29	(²)	(²)	5	6	218
Rochester.....	78	12.4	19.4	6	10	53
St. Louis.....	245	15.1	18.8	10	22	32
St. Paul.....	63			5	3	51
Salt Lake City ⁴	53	20.0	16.2	6	8	94
San Antonio.....	104	24.9	21.3	17	9	
San Diego.....	42			2	5	42
San Francisco.....	168	15.0	16.3	10	5	69
Schenectady.....	21	11.7	17.9	4	2	125
Seattle.....	107	14.6	12.1	7	4	70
Somerville.....	27	13.7	17.8	4	1	130
Spokane.....	27	12.9	19.1	0	3	0
Springfield, Mass.....	55	19.1	19.5	4	10	63
Syracuse.....	51	13.3	12.8	4	2	50
Toledo.....	84	14.0	14.2	3	9	27
Trenton.....	46	17.3	19.5	4	5	74
Utica.....	25	12.5	14.5	3	1	85
Washington, D. C.....	160	15.1	19.3	10	20	58
White.....	103			5	11	43
Colored.....	57	(²)	(²)	5	9	89
Waterbury.....	24			2	2	51
Wilmington, Del.....	43	17.4	13.4	7	3	158
Worcester.....	51	13.5	12.1	5	1	65
Yonkers.....	22	9.5	15.5	2	5	48
Youngstown.....	45	13.5	13.5	5	5	78

¹ Annual rate per 1,000 population.

² Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.

³ Data for 72 cities.

⁴ Deaths for week ended Friday.

⁵ In the cities for which deaths are shown by color, the colored population in 1929 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended February 1, 1930, and February 2, 1929

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended February 1, 1930, and February 2, 1929

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Feb 1, 1930	Week ended Feb 2, 1929	Week ended Feb 1, 1930	Week ended Feb 2, 1929	Week ended Feb 1, 1930	Week ended Feb 2, 1929	Week ended Feb. 1, 1930	Week ended Feb. 2, 1929
New England States								
Maine	3	1	5	943	1	177	0	0
New Hampshire				265	11	20	0	0
Vermont	2	3		318		25	0	0
Massachusetts	111	84	7	1,149	305	593	7	4
Rhode Island	14	2		205	2	61	0	0
Connecticut	25	28	8	684	25	253	2	3
Middle Atlantic States								
New York	159	239	160	1,778	536	737	10	43
New Jersey	125	113	13	361	274	144	6	8
Pennsylvania	207	221			721	1,021	8	15
East North Central States								
Ohio	93	106	43	621	692	765	18	20
Indiana	31	25		219	107	225	11	0
Illinois	213	145	25	430	401	438	11	9
Michigan	77	92	11	110	320	151	26	17
Wisconsin	17	16	32	354	878	392	7	5
West North Central States								
Minnesota	10	16	1	30	143	242	4	5
Iowa	8	7	8		342	16	2	1
Missouri	39	39	35	433	106	227	15	4
North Dakota	21	11		122	26	37	3	6
South Dakota		3			98	53	3	0
Nebraska	16	13	31	92	578	46	6	1
Kansas	16	20	16	86	254	47	1	7
South Atlantic States								
Delaware	3		2	4	5	19	0	0
Maryland	20	27	53	2,924	7	56	4	4
District of Columbia	26	9	1	87	4	3	1	0
Virginia							5	
West Virginia	15	12	46	1,994	68	77	0	3
North Carolina	40	42	25		11	22	2	1
South Carolina	16	21	966	2,148		6	3	0
Georgia	16	10	164	1,133	95	29	12	5
Florida	12	6		345	50	5	0	2
East South Central States								
Kentucky				402	89	32	2	0
Tennessee	5	9	134	1,559	114	26	11	0
Alabama	19	21	208	1,896	47	110	1	7
Mississippi	12	17		402			10	1
West South Central States								
Arkansas	10	4	228	1,013	7	18	2	1
Louisiana	45	17	29	1,150	27	38	1	4
Oklahoma	35	45	164	1,622	91	8	6	23
Texas	52	54	214	912	114	72	1	7
Mountain States								
Montana	1	1		32	20	113	5	4
Idaho	2	4			30	2	4	2
Wyoming		1	1	2	34	5	1	0
Colorado	3	12	1	18	101	10	4	16
New Mexico	11	1	3	5	116	5	0	0
Arizona	5	8	24	8	5		6	9
Utah	1	5	3	5	129	2	2	7

¹ New York City only.

² Figures for 1930 are exclusive of Oklahoma City and Tulsa.

³ Week ended Friday.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended February 1, 1930, and February 2, 1929—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Feb 1, 1930	Week ended Feb 2, 1929	Week ended Feb 1, 1930	Week ended Feb 2, 1929	Week ended Feb 1, 1930	Week ended Feb 2, 1929	Week ended Feb 1, 1930	Week ended Feb 2, 1929
Pacific States:								
Washington.....	6	3	2	3	149	47	4	3
Oregon.....	8	20	111	106	13	103	0	2
California.....	68	63	44	179	864	87	5	17
Division and State	Polio-myelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Feb 1, 1930	Week ended Feb 2, 1929	Week ended Feb 1, 1930	Week ended Feb 2, 1929	Week ended Feb 1, 1930	Week ended Feb 2, 1929	Week ended Feb 1, 1930	Week ended Feb 2, 1929
New England States:								
Maine.....	1	0	45	25	0	4	3	2
New Hampshire.....	0	0	15	18	0	0	0	0
Vermont.....	0	0	5	4	8	1	0	0
Massachusetts.....	0	0	283	266	0	1	4	1
Rhode Island.....	0	0	25	26	0	0	0	0
Connecticut.....	0	0	97	37	0	0	0	0
Middle Atlantic States:								
New York.....	0	2	489	450	12	1	17	15
New Jersey.....	0	0	231	150	0	1	2	3
Pennsylvania.....	0	1	540	545	1	0	12	7
East North Central States:								
Ohio.....	1	1	438	306	213	50	7	5
Indiana.....	0	0	247	195	243	42	1	3
Illinois.....	0	1	640	387	133	131	7	9
Michigan.....	0	0	401	296	76	37	3	1
Wisconsin.....	0	1	132	185	50	13	1	4
West North Central States:								
Minnesota.....	0	1	142	143	10	3	6	4
Iowa.....	0	1	110	152	111	31	0	0
Missouri.....	3	0	104	75	51	64	0	4
North Dakota.....	2	0	40	39	27	2	0	0
South Dakota.....	0	0	38	49	19	80	0	1
Nebraska.....	0	0	95	127	41	70	1	1
Kansas.....	1	0	145	122	63	43	2	4
South Atlantic States:								
Delaware.....	0	1	27	3	0	0	0	0
Maryland.....	0	0	91	81	0	2	3	0
District of Columbia.....	0	0	16	21	0	0	0	0
Virginia.....	1	0						
West Virginia.....	0	0	40	37	27	4	8	1
North Carolina.....	0	0	51	64	23	14	1	2
South Carolina.....	1	0	30	15	3	17	2	6
Georgia.....	0	0	20	18	0	0	5	3
Florida.....	1	0	12	9	1	1	1	1
East South Central States:								
Kentucky.....	0	0	56	85	19	16	1	3
Tennessee.....	0	0	26	35	19	2	2	7
Alabama.....	0	0	37	25	3	3	2	2
Mississippi.....	0	1	16	10	0	1	1	2
West South Central States:								
Arkansas.....	0	0	23	12	31	2	4	0
Louisiana.....	0	2	12	27	7	4	11	9
Oklahoma.....	0	2	38	49	49	40	3	4
Texas.....	0	0	70	72	72	103	0	2
Mountain States:								
Montana.....	0	0	31	37	3	20	0	1
Idaho.....	1	0	8	2	7	56	1	4
Wyoming.....	0	0	7	15	23	0	1	0
Colorado.....	0	0	37	35	32	54	0	1
New Mexico.....	0	0	4	16	4	0	1	5
Arizona.....	0	0	17	11	45	1	1	0
Utah.....	0	0	12	10	3	9	0	0
Pacific States:								
Washington.....	1	0	66	26	95	28	5	1
Oregon.....	0	0	61	26	29	38	1	0
California.....	7	1	341	355	71	63	8	7

¹ New York City only.

² Week ended Friday.

³ Figures for 1930 are exclusive of Oklahoma City and Tulsa.

⁴ Delayed report.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Menin- gococ- cus menin- gitis	Diph- theria	Influa- enza	Ma- laria	Meas- les	Pellag- ra	Polio- myo- litis	Scarlet fever	Small- pox	Ty- phoid fever
<i>November, 1929</i>										
Hawaii Territory	2	41	6		13		0	4	0	10
<i>December, 1929</i>										
Arkansas	37	57	439	95	209	2	1	112	41	23
Florida	1	55	20	176	31	1	1	42	12	8
Iowa	2	48					5	299	440	16
Mississippi	4	193	4,405	2,430	323	326	1	143	3	37
Pennsylvania	38	675			1,666	2	5	1,550	15	61
South Carolina		337	3,385	711	16	179	7	108	7	31
South Dakota	4	14	5		52		0	131	189	4
Virginia	4	338	1,641	28	204	7	6	367	27	26

November, 1929

	Cases
Hawaii Territory	
Chicken pox	19
Conjunctivitis (follicular)	629
Hookworm disease	6
Impetigo contagiosa	5
Leprosy	1
Mumps	7
Tetanus	2
Trachoma	260
Whooping cough	4

December, 1929

Anthrax	
Mississippi	1
Pennsylvania	3
Chicken pox	
Arkansas	110
Florida	103
Mississippi	973
Pennsylvania	3,972
South Carolina	162
South Dakota	164
Virginia	576
Dengue	
Mississippi	1
South Carolina	5
Diarrhea	
South Carolina	344
Dysentery	
Florida	1
Mississippi (amebic)	20
Mississippi (bacillary)	254
Dysentery and diarrhea	
Virginia	109
German measles	
Pennsylvania	91
Hookworm disease	
Mississippi	206
South Carolina	88
Lethargic encephalitis	
Pennsylvania	6
South Carolina	1
Malarial hemoglobinuria	
South Carolina	1

December, 1929—Continued

	Cases
Mumps	
Arkansas	46
Florida	88
Mississippi	165
Pennsylvania	857
South Carolina	44
South Dakota	43
Ophthalmia neonatorum	
Mississippi	29
Pennsylvania	9
South Carolina	14
Paratyphoid fever	
South Carolina	5
Puerperal septicemia	
Mississippi	15
Pennsylvania	8
Rabies in animals	
Mississippi	4
South Carolina	8
Septic sore throat	
South Dakota	2
Tetanus	
Pennsylvania	2
Trachoma	
Arkansas	5
Mississippi	10
South Dakota	2
Tularaemia	
Virginia	19
Typhus fever	
Florida	5
Undulant fever	
Iowa	12
Pennsylvania	1
Whooping cough	
Arkansas	97
Florida	30
Mississippi	845
Pennsylvania	1,303
South Carolina	276
South Dakota	38
Virginia	976

Number of Cases of Certain Communicable Diseases Reported for the Month of November, 1929, by State Health Officers

State	Chick- en pox	Diph- theria	Meas- les	Mumps	Scarlet fever	Small- pox	Tuber- culosis	Typhoid fever and paraty- phoid fever	Whoop- ing cough
Maine.....	430	32	81	166	161	0	26	22	129
New Hampshire.....		23			102	0		5	
Vermont.....	268	17	16	15	84	16	17	4	102
Massachusetts.....	1,306	556	395	409	874	0	476	23	668
Rhode Island.....	61	71	6	5	76	0	39	2	62
Connecticut.....	641	91	11	100	200	0	110	18	146
New York.....	2,162	728	730	867	1,101	118	1,647	100	1,337
New Jersey.....	984	655	111		558	0	390	28	492
Pennsylvania.....	3,834	869	1,526	758	1,411	10	708	106	1,324
Ohio.....	2,870	362	1,096	321	1,073	557	691	79	642
Indiana.....	594	211	58	26	557	630	229	22	104
Illinois.....	2,144	966	891	372	2,015	487	872	62	974
Michigan.....	1,854	402	658	358	987	282	328	32	458
Wisconsin.....	1,701	123	1,696	238	399	119	147	81	666
Minnesota.....	1,180	134	284		441	14	213	25	156
Iowa.....		42			209	216		93	
Missouri.....	462	382	150	36	545	99	261	32	232
North Dakota.....	222	27	64	212	96	59	30	6	33
South Dakota.....	117	19	21	9	79	234	7	2	18
Nebraska.....	177	90	156	249	144	116	16	1	67
Kansas.....	542	166	225	160	381	164	152	21	190
Delaware.....	57	16	2		13	0	16	3	24
Maryland.....	349	111	83	43	258	0	147	49	234
District of Columbia.....	58	62	4		53	0	90	0	19
Virginia.....	468	435	127		408	113	77	42	791
West Virginia.....	346	214	102	3	390	72	42	95	199
North Carolina.....	478	757	15		508	15		39	771
South Carolina.....	136	464	28	44	160	4	148	95	463
Georgia.....	60	110	36	17	211	0	81	25	99
Florida.....	40	84	11	63	47	2	22	5	20
Kentucky ¹									
Tennessee.....	155	322	114	7	346	40	244	122	135
Alabama.....	91	332	52	18	295	208	284	45	97
Mississippi.....	584	324	159	90	137	1	253	44	682
Arkansas.....	73	76	5	16	133	16	131	40	40
Louisiana.....	44	192	17		83	4	114	46	17
Oklahoma ¹	130	397	72	2	295	92	76	119	55
Texas ²									
Montana.....	108	8	279	225	165	73	16	24	12
Idaho.....	192	4	344	64	74	65	3	1	38
Wyoming.....	34	9	3	10	14	54		1	15
Colorado.....	539	34	24	53	96	113	60	33	64
New Mexico.....									
Arizona.....	50	94	6	278	44	2	237	22	57
Utah ²									
Nevada.....	3			11					
Washington.....	701	68	88	266	196	250	194	35	117
Oregon.....	271	63	58	79	168	35	51	11	34
California.....	1,052	350	407	1,203	1,071	179	744	46	428

¹ Pulmonary.² Reports received weekly.³ Exclusive of Oklahoma City and Tulsa.

Case Rates per 1,000 Population (Annual Basis) for the Month of November, 1929

State	Chick- en pox	Diph- theria	Meas- les	Mumps	Scarlet fever	Small- pox	Tuber- culosis	Typhoid fever and paraty- phoid fever	Whoop- ing cough
Maine	6.56	0.49	1.24	2.53	2.46	0.00	0.40	0.34	1.97
New Hampshire	.61				2.72	.00		.13	
Vermont	9.25	.59	.55	.52	2.90	.55	.59	.14	3.52
Massachusetts	3.66	1.56	1.11	1.15	2.45	.00	1.34	.06	1.87
Rhode Island	1.07	1.19	.10	.08	1.27	.00	.65	.03	1.04
Connecticut	4.79	.65	.08	.72	1.43	.00	.79	.13	1.05
New York	2.25	.76	.76	.90	1.15	.12	1.72	.10	1.39
New Jersey	3.08	2.05	.44		1.74	.00	1.22	.09	1.54
Pennsylvania	4.67	1.06	1.86	.92	1.72	.01	.86	.13	1.61
Ohio	5.03	.63	1.92	.56	1.88	.98	1.21	.14	1.13
Indiana	2.26	.80	.22	.10	2.12	2.39	.87	.08	.40
Illinois	3.48	1.57	1.45	.60	3.27	.79	1.42	.10	1.58
Michigan	4.81	1.28	1.71	.93	2.56	.73	.83	.08	1.19
Wisconsin	6.93	.50	6.91	.97	1.62	.48	.60	.33	2.71
Minnesota	5.20	.59	1.25		1.95	.06	.94	.11	.69
Iowa		.21			1.05	1.08		.47	
Missouri	1.59	1.31	.52	.12	1.88	.34	.86	.11	.80
North Dakota	4.21	.51	1.21	4.02	1.82	1.12	.57	.11	.63
South Dakota	2.00	.32	.36	.15	1.35	4.00	.12	.03	.31
Nebraska	1.52	.77	1.34	2.13	1.23	.59	.11	.01	.57
Kansas	3.58	1.10	1.49	1.06	2.52	1.08	1.00	.14	1.31
Delaware	2.84	.79	.10		.65	.00	1.30	.15	1.19
Maryland	2.60	.83	.62	.32	1.92	.00	1.09	.36	1.74
District of Columbia	1.25	1.34	.09		1.14	.00	1.94	.13	.41
Virginia	2.19	2.03	.59		1.91	.53	.36	.20	3.70
West Virginia	2.40	1.49	.71	.02	2.71	.50	.29	.60	1.38
North Carolina	1.95	3.09	.06		2.07	.06		.16	3.15
South Carolina	.88	3.00	.18	.28	1.03	.03	.96	.61	2.90
Georgia	.23	.41	.14	.06	.79	.00	.30	.09	.37
Florida	.33	.70	.09	.33	.39	.02	.18	.04	.17
Kentucky ¹									
Tennessee	.75	1.66	.55	.03	1.67	.19	1.18	.59	.65
Alabama	.43	1.56	.24	.08	1.38	.97	1.33	.21	.45
Mississippi	3.97	2.20	1.08	.61	.93	.01	1.72	.80	4.63
Arkansas	.45	.47	.04	.10	.82	.10	1.19	.25	.30
Louisiana	.27	1.19	.11		.51	.02	1.71	.28	.11
Oklahoma ²	.73	2.22	.40	.01	1.65	.52	.43	.67	.31
Texas ²									
Montana	2.39	.18	6.18	4.99	3.66	1.62	.35	.53	.27
Idaho	4.19	.09	7.50	1.40	1.61	1.42	.07	.02	.83
Wyoming	1.61	.43	.14	.48	.67	2.60		.05	.72
Colorado	5.93	.37	.26	.58	1.06	1.24	.66	.36	.59
New Mexico									
Arizona	1.24	2.34	.15	6.92	1.09	.05	5.90	.55	1.42
Utah ²									
Nevada	.47			1.73					
Washington	5.29	.51	.66	2.01	1.48	1.80	1.46	.26	.88
Oregon	3.61	.84	.77	1.05	2.24	.47	.68	.15	.45
California	2.74	.91	1.06	3.13	2.78	.47	1.93	.12	1.11

¹ Pulmonary.² Reports received weekly.³ Exclusive of Oklahoma City and Tulsa.

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 97 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 31,860,000. The estimated population of the 90 cities reporting deaths is more than 30,270,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended January 25, 1930, and January 26, 1929

	1930	1929	Estimated expectancy
<i>Cases reported</i>			
Diphtheria:			
46 States.....	1,594	1,618	-----
97 cities.....	695	753	865
Measles:			
43 States.....	6,437	6,280	-----
97 cities.....	1,386	1,587	-----
Meningococcus meningitis.			
46 States.....	240	234	-----
97 cities.....	92	101	-----
Poliomyelitis:			
46 States.....	20	24	-----
Scarlet fever			
46 States.....	5,022	4,207	-----
97 cities.....	1,502	1,391	1,563
Smallpox.			
46 States.....	1,745	787	-----
97 cities.....	161	45	63
Typhoid fever.			
46 States.....	173	163	-----
97 cities.....	26	27	42
<i>Deaths reported</i>			
Influenza and pneumonia.			
90 cities.....	953	2,628	-----
Smallpox:			
90 cities.....	0	0	-----

City reports for week ended January 25, 1930

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during non-epidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1921 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Chick- en pox, cases re- ported	Diphtheria		Influenza		Meas- les, cases re- ported	Mumps, cases re- ported	Pneu- monia, deaths re- ported
		Cases, esti- mated expect- ancy	Cases re- ported	Cases re- ported	Deaths re- ported			
NEW ENGLAND								
Maine:								
Portland	11	1	1	-----	0	1	3	7
New Hampshire:								
Concord	0	0	2	-----	0	1	0	2
Manchester	0	2	0	-----	0	0	0	2
Nashua	1	0	0	-----	0	0	0	0
Vermont:								
Barre	0	0	0	-----	0	10	0	0
Burlington	0	1	0	-----	1	0	1	0
Massachusetts:								
Boston	85	38	28	5	1	33	66	18
Fall River	17	5	4	-----	0	0	5	2
Springfield	32	5	14	-----	0	1	0	4
Worcester	18	5	1	1	0	45	0	3
Rhode Island:								
Pawtucket	9	2	3	-----	0	0	0	1
Providence	3	10	5	-----	0	2	0	6
Connecticut:								
Bridgeport	0	6	2	2	1	0	0	2
Hartford	9	8	5	3	2	0	3	8
New Haven	51	1	1	-----	0	2	13	4

City reports for week ended January 25, 1930—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
MIDDLE ATLANTIC								
New York								
Buffalo	19	16	9		2	5	3	17
New York	240	229	100	34	14	71	79	170
Rochester	32	10	0		1	5	2	5
Syracuse	39	4	0		0	1	74	2
New Jersey:								
Camden	2	7	6		0	1	0	5
Newark	91	21	30	3	0	69	4	10
Trenton	8	3	3	1	0	22	0	2
Pennsylvania:								
Philadelphia	110	78	32	10	7	21	21	45
Pittsburgh	52	24	28	1	6	48	4	24
Reading	13	3	3		0	1	0	2
Scranton	2	5	5		0	0	0	0
EAST NORTH CENTRAL								
Ohio								
Cincinnati	28	10	4		2	1	0	12
Cleveland	133	39	11	16	5	8	19	21
Columbus	13	5	3		3	3	1	4
Toledo	62	8	3	2	2	230	9	8
Indiana:								
Fort Wayne	3	5	0		0	0	0	1
Indianapolis	28	9	5		1	17	2	20
South Bend	2	1	0		0	0	0	0
Terre Haute	0	2	0		0	0	0	3
Illinois:								
Chicago	123	110	139	13	9	17	18	60
Springfield	3	1	0	10	1	2	0	1
Michigan:								
Detroit	75	55	62	10	3	121	35	33
Flint	18	5	1		1	1	0	2
Grand Rapids	4	1	1		1	0	2	1
Wisconsin:								
Kenosha	9	0	0		0	1	1	0
Madison	2	1	2			137	4	
Milwaukee	153	23	6	2	1	4	31	10
Racine	8	3	0		0	0	3	0
Superior	2	1	0		0	43	0	1
WEST NORTH CENTRAL								
Minnesota:								
Duluth	0	1	0		0	24	0	3
Minneapolis	19	22	3		2	59	26	
St. Paul	26	10	2		3	9	11	8
Iowa:								
Davenport	3	1	0			0	0	
Des Moines	2	2	1			28	0	
Sioux City	5	1	0			1	1	
Waterloo	12	1	1			113	1	
Missouri:								
Kansas City	24	7	5		0	4	0	14
St. Joseph	3	2	1		0	0	0	0
St. Louis	25	47	20	2	1	3	7	
North Dakota:								
Fargo	4	0	0		0	0	10	1
Grand Forks	1	0	0			0	0	
South Dakota:								
Aberdeen	12	0	0			0	1	
Sioux Falls	0	0	0			10	0	
Nebraska:								
Omaha	8	5	5		0	17	0	6
Kansas:								
Topeka	27	2	0	1	1	7	4	8
Wichita	15	4	6		0	4	2	10
SOUTH ATLANTIC								
Delaware:								
Wilmington	5	3	0		0	0	1	5
Maryland:								
Baltimore	74	30	19	8	2	5	13	28
Cumberland	1	0	0		0	0	0	1
Frederick	0	4	0		0	0	0	2

City reports for week ended January 25, 1930—Continued

Division, State, and city	Chick- en pox, cases re- ported	Diphtheria		Influenza		Meas- les, cases re- ported	Mumps, cases re- ported	Pneu- monia, deaths re- ported
		Cases, esti- mated expect- ancy	Cases re- ported	Cases re- ported	Deaths re- ported			
SOUTH ATLANTIC—continued								
District of Columbia								
Washington.....	27	22	18	3	2	3	0	16
Virginia								
Lynchburg.....	10	2	0		1	64	16	5
Norfolk.....	0	1	1	1	0	1	6	6
Richmond.....	1	0	4		2	0	3	7
Roanoke.....	4	1	3		0	10	0	4
West Virginia								
Charleston.....	15	2	1		0	0	0	2
Wheeling.....	2	1	1		0	2	1	4
North Carolina								
Raleigh.....	15	1	0		0	1	0	2
Wilmington.....	3	0	0		0	0	0	0
Winston-Salem.....	4	0	1	1	1	0	20	6
South Carolina								
Charleston.....	3	1	2	32	2	0	2	3
Columbia.....	3	1	0		0	0	3	4
Georgia:								
Atlanta.....	14	3	3	27	4	0	6	7
Brunswick.....	0	0	0		0	0	0	1
Savannah.....	0	1	1	5	3	0	0	6
Florida:								
Miami.....	2	2	2		0	0	7	1
St. Petersburg.....		0			0			0
Tampa.....	9	1	5		0	1	6	4
EAST SOUTH CENTRAL								
Kentucky:								
Covington.....	1	1	0		0	0	0	2
Tennessee:								
Memphis.....	5	5	1		3	1	0	14
Nashville.....	0	1	3		1	0	0	1
Alabama:								
Birmingham.....	10	3	5	8	3	0	2	7
Mobile.....	0	0	1	2	1	2	0	6
Montgomery.....	3	1	1	1		1	0	
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith.....	1	1	0			0	1	
Little Rock.....	5	1	0		0	1	0	3
Louisiana:								
New Orleans.....	5	13	21	14	17	52		22
Shreveport.....	11	1	0		2	1	0	5
Oklahoma:								
Oklahoma City.....	2	2	2	2	1	3	0	8
Tulsa.....	42	2	1			45	0	
Texas:								
Dallas.....	8	7	3	3	0	113	0	8
Fort Worth.....	8	3	5		2	0	0	8
Galveston.....	0	1	1		0	0	0	2
Houston.....	0	7	13		1	0	0	10
San Antonio.....	2	3	1		9	0	0	31
MOUNTAIN								
Montana:								
Billings.....	0	1	0		0	0	15	0
Great Falls.....	0	1	0		0	0	14	2
Helena.....	0	0	0		0	0	42	0
Missoula.....	0	0	0		0	0	3	1
Idaho:								
Boise.....	0	0	0		0	0	0	0
Colorado:								
Denver.....		12						
Pueblo.....	21	2	0		0	0	17	0
New Mexico:								
Albuquerque.....	1	0	1		0	0	0	2
Arizona:								
Phoenix.....	3	1	1		0	0	6	9
Utah:								
Salt Lake City.....	33	3	3		0	22	9	7
Nevada:								
Reno.....	0	0	0		0	0	0	0

City reports for week ended January 25, 1930—Continued

Division, State, and city	Chick- en pox, cases re- ported	Diphtheria		Influenza		Meas- les, cases re- ported	Mumps, cases re- ported	Pneumonia, deaths re- ported	
		Cases, es- timated ex- pectancy	Cases re- ported	Cases re- ported	Deaths re- ported				
PACIFIC									
Washington:									
Seattle.....	64	4	5			7	50		
Spokane.....	14	3	1			1	0		
Tacoma.....	13	3	3		0	0	1	2	
Oregon:									
Portland.....	20	11	7	5	0	3	11	9	
Salem.....	2	0	2		0	0	14	0	
California:									
Los Angeles.....	80	45	18	34	4	33	26	20	
Sacramento.....	5	3	0		1	1	16	4	
San Francisco.....	26	17	12	2	1	267	27	5	
Division, State, and city	Scarlet fever		Smallpox		Tuber- culosis, deaths re- ported	Typhoid fever		Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, es- timated ex- pectancy	Cases re- ported	Cases, es- timated ex- pectancy	Cases re- ported		Cases, es- timated ex- pectancy	Cases re- ported			Deaths re- ported
NEW ENGLAND									
Maine:									
Portland.....	3	10	0	0	2	0	0	0	32
New Hampshire:									
Concord.....	0	1	0	0	0	0	0	0	10
Manchester.....	3	0	0	0	0	0	0	0	10
Nashua.....	1	2	0	0	0	0	0	0	
Vermont:									
Barre.....	0	0	0	2	1	0	0	0	3
Burlington.....	2	0	0	0	0	0	0	1	2
Massachusetts:									
Boston.....	82	86	0	0	10	1	0	78	207
Fall River.....	4	11	0	0	4	0	0	4	26
Springfield.....	10	11	0	0	1	0	0	25	24
Worcester.....	11	16	0	0	6	0	0	29	61
Rhode Island:									
Pawtucket.....	2	1	0	0	1	1	0	6	12
Providence.....	12	21	0	0	1	0	0	13	72
Connecticut:									
Bridgeport.....	12	7	0	0	1	0	0	2	31
Hartford.....	7	13	0	0	0	0	0	13	48
New Haven.....	9	12	0	0	0	0	0	15	42
MIDDLE ATLANTIC									
New York:									
Buffalo.....	30	32	0	2	8	0	1	26	156
New York.....	300	218	1	1	112	9	7	65	1,550
Rochester.....	12	7	0	0	4	0	0	2	70
Syracuse.....	15	18	0	0	1	1	0	37	46
New Jersey:									
Camden.....	8	6	0	0	1	0	0	2	25
Newark.....	33	57	0	0	5	0	0	38	111
Trenton.....	6	17	0	0	3	0	0	7	34
Pennsylvania:									
Philadelphia.....	108	116	1	0	31	2	3	27	496
Pittsburgh.....	45	23	0	0	12	1	0	41	195
Reading.....	4	5	0	0	0	1	0	26	30
Scranton.....	5	9	0	0	0	0	0	2	
EAST NORTH CENTRAL									
Ohio:									
Cincinnati.....	21	32	1	0	7	0	0	1	143
Cleveland.....	47	57	0	0	16	1	2	102	208
Columbus.....	12	15	0	8	4	1	0	1	84
Toledo.....	15	10	1	13	1	1	0	4	74
Indiana:									
Fort Wayne.....	6	18	0	0	1	0	0	0	25
Indianapolis.....	14	7	7	2	2	0	0	19	126
South Bend.....	3	9	0	1	1	0	0	0	19
Terre Haute.....	4	6	1	0	1	0	0	0	17

City reports for week ended January 25, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culosis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
EAST NORTH CEN- TRAL.—contd											
Illinois:											
Chicago.....	138	254	2	6	0	47	3	0	0	98	751
Springfield.....	4	0	0	0	0	0	1	0	0	3	21
Michigan:											
Detroit.....	111	136	2	9	0	18	1	1	0	40	208
Flint.....	13	11	1	4	0	1	0	0	0	10	21
Grand Rapids.....	14	12	0	0	0	1	0	0	0	5	32
Wisconsin:											
Kenosha.....	2	3	0	0	0	0	0	0	0	10	-----
Madison.....	4	4	0	1	-----	-----	0	0	-----	20	-----
Milwaukee.....	41	34	0	1	0	9	1	0	0	60	106
Racine.....	6	6	0	0	0	0	0	1	0	11	15
Superior.....	3	5	0	0	0	0	0	0	0	0	10
WEST NORTH CEN- TRAL											
Minnesota:											
Duluth.....	12	3	0	0	0	1	1	0	0	5	19
Minneapolis.....	62	19	4	1	0	2	1	1	0	3	99
St. Paul.....	36	23	1	0	0	4	0	0	1	28	69
Iowa:											
Davenport.....	2	0	1	10	-----	-----	0	0	-----	0	-----
Des Moines.....	11	15	2	7	-----	-----	0	0	-----	0	32
Sioux City.....	1	2	1	3	-----	-----	0	0	-----	0	-----
Waterloo.....	2	4	0	22	-----	-----	0	0	-----	3	-----
Missouri:											
Kansas City.....	16	40	2	0	0	10	0	0	0	5	114
St. Joseph.....	3	3	0	0	0	1	0	0	0	0	27
St. Louis.....	49	23	1	2	0	12	1	0	1	4	225
North Dakota:											
Fargo.....	2	9	0	1	0	0	0	0	0	5	6
Grand Forks.....	0	0	0	11	-----	-----	0	0	-----	0	-----
South Dakota:											
Aberdeen.....	1	2	0	0	-----	-----	0	0	-----	0	-----
Sioux Falls.....	2	3	0	23	-----	-----	0	0	-----	0	12
Nebraska:											
Omaha.....	6	6	1	1	0	1	0	0	0	0	50
Kansas:											
Topeka.....	2	8	0	5	0	0	0	0	0	1	40
Wichita.....	7	22	0	2	0	1	0	0	0	2	31
SOUTH ATLANTIC											
Delaware:											
Wilmington.....	6	9	0	0	0	0	0	0	0	0	27
Maryland:											
Baltimore.....	36	38	0	0	0	18	2	2	0	15	250
Cumberland.....	1	1	0	0	0	1	0	0	0	0	13
Frederick.....	1	0	0	0	0	0	0	0	0	0	3
District of Col.:											
Washington.....	27	20	1	0	0	15	2	1	0	11	154
Virginia:											
Lynchburg.....	0	0	0	0	0	0	0	0	0	4	15
Norfolk.....	2	5	0	0	0	3	0	0	0	4	-----
Richmond.....	5	5	0	0	0	3	0	0	0	0	60
Roanoke.....	2	0	0	0	0	1	0	0	0	2	21
West Virginia:											
Charleston.....	0	0	0	0	0	5	0	1	0	25	35
Wheeling.....	2	2	0	0	0	0	1	0	0	19	29
North Carolina:											
Raleigh.....	1	0	0	1	0	0	0	0	0	5	14
Wilmington.....	1	2	0	0	0	0	0	0	0	5	7
Winston-Salem.....	2	1	1	0	0	0	0	0	0	2	20
South Carolina:											
Charleston.....	1	3	0	0	0	4	0	0	1	4	35
Columbia.....	0	0	1	0	0	0	0	0	0	28	16
Georgia:											
Atlanta.....	5	8	3	0	0	4	0	0	0	3	90
Brunswick.....	0	0	0	0	0	0	0	0	0	0	4
Savannah.....	0	4	0	0	0	1	1	0	0	0	43
Florida:											
Miami.....	2	1	0	0	0	2	0	1	0	0	25
St. Petersburg.....	0	-----	0	-----	0	0	0	0	0	-----	11
Tampa.....	1	3	0	0	0	1	1	0	0	0	34

City reports for week ended January 25, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- cul- osis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
EAST SOUTH CEN- TRAL											
Kentucky:											
Covington.....	2	3	0	0	0	2	0	0	0	0	15
Tennessee:											
Memphis.....	7	7	1	0	0	5	0	0	0	0	94
Nashville.....	2	0	0	0	0	4	0	3	0	2	42
Alabama:											
Birmingham....	3	13	4	0	0	3	1	0	0	0	44
Mobile.....	0	1	0	0	0	2	0	0	0	0	34
Montgomery.....	0	1	0	0			0	0		0	
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith.....	1	2	0	0			0	0		0	
Little Rock.....	2	1	0	0	0	0	0	0	0	0	
Louisiana:											
New Orleans....	7	11	0	0	0	17	3	1	0	1	192
Shreveport.....	0	2	0	2	0	0	0	0	0	0	35
Oklahoma:											
Oklahoma City....	2	11	1	12	0	3	0	0	0	0	48
Tulsa.....	1	2	1	2			0	0		7	
Texas:											
Dallas.....	5	3	2	2	0	6		0	0	5	69
Fort Worth.....	3	1	2	0	0	4	0	0	0	0	45
Galveston.....	0	0	0	0	0	0	1	0	0	0	17
Houston.....	3	9	1	4	0	9	0	0	0	0	80
San Antonio.....	1	0	0	2	0	2	0	0	1	0	109
MOUNTAIN											
Montana:											
Billings.....	1	1	0	0	0	0	0	0	0	0	6
Great Falls.....	2	21	1	0	0	0	0	0	0	0	9
Helena.....	1	0	0	0	0	1	0	0	0	3	8
Missoula.....	1	1	0	2	0	0	0	1	0	0	7
Idaho:											
Boise.....	1	0	0	0	0	1	0	0	0	0	
Colorado:											
Denver.....	12		1								
Pueblo.....	2	0	0	0	0	0	0	0	0	0	14
New Mexico:											
Albuquerque.....	2	0	0	0	0	4	0	0	0	0	9
Arizona:											
Phoenix.....	0	0	0	20	0	2	0	0	0	0	25
Utah:											
Salt Lake City....	5	5	3	0	0	2	0	0	0	18	43
Nevada:											
Reno.....	0	0	0	0	0	0	0	0	0	0	3
PACIFIC											
Washington:											
Seattle.....	11	18	3	2			0	1		5	
Spokane.....	5	13	7	49			0	0		4	
Tacoma.....	3	5	3	7	0	0	1	0	0	8	25
Oregon:											
Portland.....	6	5	14	5	0	1	0	0	0	5	83
Salem.....	0	1	1	0	0	0	0	0	0	5	
California:											
Los Angeles.....	38	81	4	2	0	23	1	0	0	26	304
Sacramento.....	2	6	1	6	0	3	0	0	0	0	33
San Francisco.....	19	47	2	9	0	11	1	0	0	1	177

City reports for week ended January 25, 1930—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Polio-myelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Connecticut:									
Hartford.....	0	1	0	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
Buffalo.....	1	1	0	0	0	0	0	0	0
New York.....	10	3	0	0	0	0	1	2	1
Pennsylvania:									
Philadelphia.....	3	1	0	0	0	0	0	0	0
Pittsburgh.....	2	2	0	0	0	0	0	0	0
EAST NORTH CENTRAL									
Ohio:									
Cincinnati.....	0	0	0	1	0	0	0	0	0
Cleveland.....	6	0	0	0	0	0	0	0	0
Indiana:									
Indianapolis.....	5	6	0	0	0	0	0	0	0
South Bend.....	1	0	0	0	0	0	0	0	0
Illinois:									
Chicago.....	9	7	1	1	0	0	1	0	0
Michigan:									
Detroit.....	15	7	2	0	0	0	0	0	0
Flint.....	2	1	0	0	0	0	0	0	0
Wisconsin:									
Milwaukee.....	3	1	0	0	0	0	0	0	0
Racine.....	2	0	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
St. Paul.....	0	1	0	0	0	0	0	0	0
Iowa:									
Des Moines.....	1	0	0	0	0	0	0	0	0
Missouri:									
Kansas City.....	5	3	0	0	0	0	0	0	0
St. Louis.....	5	4	0	0	0	0	0	0	0
Nebraska:									
Omaha.....	1	0	0	0	0	0	0	0	0
Kansas:									
Topeka.....	0	1	0	0	0	0	0	0	0
Wichita.....	1	1	0	0	0	0	0	0	0
SOUTH ATLANTIC¹									
Maryland:									
Baltimore.....	0	1	0	0	0	0	1	0	0
North Carolina:									
Raleigh.....	0	0	0	0	0	1	0	0	0
South Carolina:									
Charleston.....	0	0	0	0	0	1	0	0	0
Columbia.....	0	1	0	0	0	0	0	0	0
Georgia:									
Atlanta.....	0	1	0	0	0	0	0	0	0
Brunswick.....	0	0	0	1	0	0	0	0	0
Savannah.....	0	0	0	0	1	1	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis.....	3	1	0	1	0	0	0	0	0
Nashville.....	4	0	0	0	0	0	0	0	0
Alabama:									
Birmingham.....	1	1	0	0	0	0	0	0	0
Montgomery.....	0	0	0	0	1	0	0	0	0

¹ Typhus fever: 1 case at Tampa, Fla.

City reports for week ended January 25, 1930—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
WEST SOUTH CENTRAL									
Louisiana:									
New Orleans.....	0	0	0	0	1	1	0	0	0
Oklahoma:									
Tulsa.....	1	0	0	0	0	0	0	0	0
Texas:									
Dallas.....	1	0	0	0	0	0	0	0	0
Fort Worth.....	0	0	0	0	0	2	0	0	0
Galveston.....	0	0	0	1	0	2	0	0	0
Houston.....	0	0	0	0	0	2	0	0	0
MOUNTAIN									
Arizona:									
Phoenix.....	1	1	0	0	0	0	0	0	0
Utah:									
Salt Lake City.....	5	1	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle.....	2	0	0	0	0	0	0	0	0
California:									
Los Angeles.....	3	2	0	0	0	0	1	1	0
Sacramento.....	1	0	0	0	0	0	0	0	0
San Francisco.....	2	1	0	1	0	0	0	0	0

The following table gives the rates per 100,000 population for 98 cities for the 5-week period ended January 25, 1930, compared with those for a like period ended January 26, 1929. The population figures used in computing the rates are approximate estimates, authoritative figures for many of the cities not being available. The 98 cities reporting cases have an estimated aggregate population of more than 32,000,000. The 91 cities reporting deaths have more than 30,500,000 estimated population.

Summary of weekly reports from cities, December 22, 1929, to January 25, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1928-29 ¹

DIPHTHERIA CASE RATES

	Week ended—									
	Dec 28, 1929	Dec. 29, 1929	Jan. 4, 1930	Jan 5, 1930	Jan. 11, 1930	Jan. 12, 1930	Jan. 18, 1930	Jan 19, 1930	Jan 25, 1930	Jan. 26, 1929
98 cities.....	120	133	117	148	118	139	110	² 132	³ 114	125
New England.....	127	170	136	163	156	183	122	177	146	200
Middle Atlantic.....	113	156	86	178	113	157	94	158	68	136
East North Central.....	166	133	155	153	130	124	127	² 107	145	122
West North Central.....	67	119	114	161	123	158	108	146	82	115
South Atlantic.....	79	105	86	111	83	118	103	99	106	79
East South Central.....	109	105	112	88	79	190	67	171	74	137
West South Central.....	178	174	201	111	170	119	205	76	157	114
Mountain.....	35	18	52	70	69	87	51	61	² 51	52
Pacific.....	85	43	120	60	85	67	94	104	92	92

¹ The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1930, 1929, and 1928, respectively.

² South Bend, Ind., not included.

³ Denver, Colo., not included.

Summary of weekly reports from cities, December 22, 1929, to January 25, 1930—
Annual rates per 100,000 population, compared with rates for the corresponding
period of 1928-29—Continued

MEASLES CASE RATES

	Week ended—									
	Dec 28, 1929	Dec 29, 1928	Jan. 4, 1930	Jan. 5, 1929	Jan 11, 1930	Jan 12, 1929	Jan. 18, 1930	Jan 19, 1929	Jan. 25, 1930	Jan 26, 1929
98 cities.....	92	161	130	196	176	235	208	218	227	261
New England.....	90	676	125	964	112	873	157	700	210	667
Middle Atlantic.....	51	77	78	80	116	94	124	70	117	86
East North Central.....	87	206	118	230	153	315	152	303	137	381
West North Central.....	146	201	277	198	303	394	364	423	467	627
South Atlantic.....	30	73	132	114	118	66	167	84	157	84
East South Central.....	0	0	7	14	13	7	40	34	27	27
West South Central.....	91	4	101	24	325	43	400	11	124	34
Mountain.....	78	106	197	383	146	427	240	653	377	871
Pacific.....	337	84	315	40	517	115	676	56	730	75

SCARLET FEVER CASE RATES

98 cities.....	217	183	249	195	271	221	278	225	295	230
New England.....	301	308	377	206	397	317	363	204	419	317
Middle Atlantic.....	164	138	186	148	232	190	223	183	239	217
East North Central.....	311	220	344	239	352	251	398	258	379	262
West North Central.....	179	262	248	258	216	283	260	248	307	296
South Atlantic.....	144	132	186	154	201	124	198	122	176	114
East South Central.....	75	182	125	197	106	156	101	232	169	232
West South Central.....	126	162	89	142	120	182	134	183	105	46
Mountain.....	322	27	378	113	481	157	335	183	479	104
Pacific.....	264	151	271	185	281	282	276	377	402	238

SMALLPOX CASE RATES

98 cities.....	18	4	20	3	29	5	33	17	26	8
New England.....	0	2	0	0	0	2	0	0	4	0
Middle Atlantic.....	0	0	0	1	0	0	0	0	1	0
East North Central.....	20	3	16	6	27	3	36	16	19	8
West North Central.....	58	10	80	2	89	0	121	13	70	2
South Atlantic.....	2	2	2	0	0	2	5	6	2	7
East South Central.....	7	7	0	7	7	41	0	7	0	14
West South Central.....	28	12	15	4	43	1	41	40	37	46
Mountain.....	44	35	62	35	43	1	51	17	34	61
Pacific.....	80	15	107	5	170	1	144	17	177	19

TYPHOID FEVER CASE RATES

98 cities.....	4	5	3	4	3	4	6	4	4	4
New England.....	2	2	2	5	0	2	4	4	0	2
Middle Atlantic.....	3	4	1	2	3	4	3	4	5	2
East North Central.....	1	5	3	3	2	1	3	3	3	4
West North Central.....	2	6	0	0	2	0	11	2	2	4
South Atlantic.....	9	6	6	9	9	4	5	6	7	2
East South Central.....	34	7	7	0	7	7	13	21	20	7
West South Central.....	8	8	0	4	4	28	7	8	4	23
Mountain.....	0	9	9	9	0	0	60	0	17	0
Pacific.....	10	8	10	7	5	0	5	2	2	10

† South Bend, Ind., not included.

• Denver, Colo., not included.

*Summary of weekly reports from cities, December 22, 1929, to January 25, 1930—
Annual rates per 100,000 population, compared with rates for the corresponding
period of 1928-29—Continued*

INFLUENZA DEATH RATES

	Week ended—									
	Dec. 28, 1929	Dec. 29, 1928	Jan. 4, 1930	Jan. 5, 1929	Jan. 11, 1930	Jan. 12, 1929	Jan. 14, 1930	Jan. 19, 1920	Jan. 25, 1930	Jan. 26, 1929
91 cities.....	19	180	17	234	19	241	19	¹ 183	¹ 22	131
New England.....	9	14	7	48	0	100	9	141	9	204
Middle Atlantic.....	13	129	10	165	14	161	15	152	14	134
East North Central.....	13	201	15	238	12	236	17	¹ 148	17	70
West North Central.....	15	254	27	240	30	165	27	123	18	69
South Atlantic.....	26	281	18	343	31	395	22	288	31	182
East South Central.....	30	268	29	970	65	1,592	44	948	59	619
West South Central.....	97	379	79	596	64	467	65	320	111	199
Mountain.....	26	266	17	218	43	165	26	157	¹ 0	70
Pacific.....	20	182	13	134	15	79	15	75	18	44

PNEUMONIA DEATH RATES

	144	315	170	383	167	408	155	¹ 366	¹ 142	327
91 cities.....										
New England.....	95	159	163	201	170	323	115	442	126	465
Middle Atlantic.....	155	294	181	395	192	443	167	446	135	454
East North Central.....	116	382	115	466	122	414	109	¹ 290	111	184
West North Central.....	174	364	195	216	192	285	207	241	148	189
South Atlantic.....	152	344	221	360	177	485	170	474	196	388
East South Central.....	193	261	251	533	136	659	162	455	221	358
West South Central.....	243	409	329	670	210	528	237	383	310	297
Mountain.....	209	363	180	174	223	100	249	200	¹ 171	157
Pacific.....	108	169	118	148	147	134	169	119	95	123

¹ South Bend, Ind., not included.

¹ Denver, Colo., not included.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Week ended January 18, 1930.—The Department of Pensions and National Health reports cases of certain communicable diseases in the Provinces of Canada for the week ended January 18, 1930, as follows:

Province	Cerebro-spinal fever	Influenza	Polio-myelitis	Smallpox	Typhoid fever
Prince Edward Island					
Nova Scotia		1			1
New Brunswick					3
Quebec	1				3
Ontario	2	3	1	19	
Manitoba	1			1	
Saskatchewan				12	1
Alberta	2			4	1
British Columbia				3	
Total	6	4	1	39	9

¹ No case of any diseases included in the table was reported during the week.

Quebec Province—Communicable diseases—Week ended January 25, 1930.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended January 25, 1930, as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis	1	Ophthalmia neonatorum	2
Chicken pox	137	Scarlet fever	118
Diphtheria	71	Smallpox	1
German measles	5	Tuberculosis	51
Influenza	30	Typhoid fever	5
Measles	183	Whooping cough	159
Mumps	136		

Quebec Province—Vital statistics—October, 1929.—Births, deaths, and marriages for the month of October, 1929, in the Province of Quebec, Canada, with deaths from certain principal causes, are shown in the following table:

Estimated population	2,691,000	Deaths from—Continued.	
Births	5,898	Heart disease	321
Birth rate per 1,000 population	25.8	Influenza	37
Deaths	2,819	Lethargic encephalitis	1
Death rate per 1,000 population	12.3	Measles	7
Marriages	1,989	Pneumonia	245
Deaths under 1 year	746	Polio-myelitis	1
Deaths under 1 year per 1,000 births	126.5	Scarlet fever	9
Deaths from—		Syphilis	8
Cancer	165	Tuberculosis (pulmonary)	175
Cerebrospinal meningitis	9	Tuberculosis (all other forms)	51
Diabetes	37	Typhoid fever	18
Diarrhea	187	Violence	96
Diphtheria	27	Whooping cough	36

CZECHOSLOVAKIA

Communicable diseases—November, 1929.—During the month of November, 1929, certain communicable diseases were reported in Czechoslovakia as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax.....	8	1	Paratyphoid fever.....	18	—
Cerebrospinal meningitis.....	11	5	Puerperal fever.....	60	22
Diphtheria.....	2,940	146	Scarlet fever.....	2,985	67
Dysentery.....	136	14	Trachoma.....	267	—
Malaria.....	6	—	Typhoid fever.....	950	86

MEXICO

Vera Cruz—Communicable diseases—Six weeks ended January 25, 1930.—During the six weeks ended January 25, 1930, deaths from certain communicable diseases were reported in Vera Cruz, Mexico, as follows:

Disease	Week ended—					
	Dec 21, 1929	Dec 28, 1929	Jan 4, 1930	Jan 11, 1930	Jan 18, 1930	Jan 25, 1930
Bronchitis.....	1	—	1	—	1	—
Cancer.....	—	1	2	1	—	—
Cerebrospinal meningitis.....	—	—	—	—	1	—
Dysentery.....	—	—	—	—	—	1
Erysipelas.....	—	—	—	—	1	—
Gastro-intestinal fever.....	10	10	5	17	10	4
Hook worm disease.....	2	—	1	—	1	—
Influenza.....	—	—	1	—	—	1
Malaria.....	1	1	—	—	—	—
Pneumonia.....	3	2	2	2	2	—
Syphilis.....	2	—	1	1	1	—
Tetanus.....	1	—	—	—	—	1
Tuberculosis.....	7	5	9	6	7	7
Typhoid fever.....	—	1	—	—	1	1

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE

[C indicates cases; D, deaths; P, present]

[illegible]

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX

[C indicates cases; D, deaths; P, present]

[illegible]

TYPHUS FEVER

[C indicates cases, D, deaths; P, present]

Place	Week ended—									
	November, 1929			December, 1929				January, 1930		
	23	30	7	14	21	28		4	11	18
Algeria:										
Algiers.....										
Constantine Department.....	C									
Oran.....	C									
Bolivia:										
La Paz.....	C									
Pacajes Province—Calacoto Canton.....	C									
Brazil: Sao Paulo. ¹	D									
Bulgaria:										
Sofia.....	C									
Chile: Valparaiso.....	C									
China: Tientsin.....	C									
Chosen (see table below).....	C									
Czechoslovakia (see table below).....	C									
Egypt:										
Alexandria.....	C									
Assuan.....	C									
Behaira Province.....	C									
Cairo.....	C									
Dahieh.....	C									
Port Said.....	C									
Suez.....	C									
Greece (see table below).....	C									
Iraq: Baghdad Liwa.....	C									
Ireland (Irish Free State): Donegal County—Dunfanaghy.....	C									
Latvia (see table below).....	C									
Lithuania (see table below).....	C									

¹ Press reports show that 10 deaths from typhus fever have occurred in Sao Paulo, Brazil, from Nov. 8 to 30, 1929.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER—Continued

[C indicates cases; D, deaths; P, present]

Place	July 28- Aug. 24, 1929	Aug. 25- Sept. 21, 1929	Sept. 22- Oct. 19, 1929	Oct. 20- Nov. 16, 1929	Week ended—						
					November, 1929			December, 1929			
					23	30	7	14	21	28	January, 1930 4 11 18
Mexico:											
Aguascalientes	1										
Mexico City, including municipalities in Federal District	11	14	9	3	1	1	1	2	4	2	
Morocco	1	6		1					1	1	
Palestine	6		5	4		1		1	1	1	1
Persia	1	5	3	2	1						1
Pertu: Arequipa (see table below).	23										
Poland	8										
Portugal: Oporto	48	26	31	62	17	16	19	22	18	15	28
Rumania	7	4	3			3	3	4		2	1
Tunisia	1		1	3	2	1	1				1
Turkey (see table below).	9	39	25	19	8	11	32	52			
Union of South Africa:	1	4	5	2			1	9			2
Cape Province	4		1	1	1			1			
Natal											
Orange Free State	1	P	P	P		P	P				
Transvaal	P	P	P	P		P	P				
Yugoslavia (see table below).	P	P	P	P		P	P				

Place	July, 1929	August, 1929	September, 1929	October, 1929	November, 1929	December, 1929	Place	July, 1929	August, 1929	September, 1929	October, 1929	November, 1929	December, 1929
Chosen: Seoul.....			1				Peru: Arequipa.....	1		1	1		
Czechoslovakia.....			1		3		Turkey.....		3	4	10	2	4
France.....			1			1				1			
Greece: Athens.....		6	3	7			Yugoslavia.....	3	7		1		6
Latvia.....		1						1	2				1
Lithuania.....	10	7	3	6	4								
	1	1		1	1								

YELLOW FEVER

Since August 1, 1929, the following cases of yellow fever have been reported. Netheroy, Brazil, 1 case; Rio de Janeiro, Brazil, 2 cases; Monrovia, Liberia, 1 case. All occurred during the month of September, 1929.

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===== SPECIAL ARTICLE =====

Study of Influenza Mortality in Six Epidemics, 1920-1929



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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen R. C. WILLIAMS, *Chief of Division*

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INFLUENZA-PNEUMONIA MORTALITY IN A GROUP OF ABOUT 95 CITIES IN THE UNITED STATES, 1920-1929¹

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Since the influenza pandemic of 1918-19 there have occurred at various times in the United States, as elsewhere, prominent epidemics of respiratory disease which have in some respects resembled the epidemic of 1918-19. It is not the purpose of this paper to enter into any discussion of the etiological relationship between these several epidemics nor to attempt any definition of the features which serve to identify an influenza epidemic. What is undertaken is to study the course of the recorded mortality from certain respiratory diseases week by week in a large group of cities of the United States; to identify from this record the more distinct periods of notably excessive mortality; to measure the excess, as well as may be; to study its distribution in various sections of the United States in each period; and to study the indicated movement of these epidemics from one part of the country to another.

However objective an approach one may wish to make in the study of the phenomena, the fact that the epidemic manifestations are ordinarily recorded as "influenza" in morbidity statistics and "influenza" and "pneumonia" in mortality statistics carries with it an implication that these manifestations were epidemic influenza. In other words, we have been accustomed to call these respiratory epidemics by a single name—"influenza." It may be that this is a correct interpretation. On the other hand, it may be argued that

¹ From the Office of Statistical Investigations, United States Public Health Service.

This study was made as one of a series of studies of influenza under the general direction of the United States Public Health Service Board for the Study of Respiratory Diseases consisting of Consultant W. H. Frost, Statistician Edgar Sydenstricker, and Associate Statistician Selwyn D. Collins. In the preparation of the study, the author has had the advice and assistance of the other members of this board and of the statistical staff of the Office of Statistical Investigations and associated offices of the Public Health Service. The clerical work was done by or under the direction of Senior Statistical Clerk F. Ruth Phillips.

what we are dealing with is not a single etiological unit but more than one. What should be emphasized at the outset of this paper is that we are not concerned here with this point. On the contrary, the hope may be expressed that the mortality statistics which form the data of this study, even though they are officially recorded as "influenza" and "pneumonia," will be regarded by the reader without any prejudice one way or the other from the etiological point of view.

As will be shown in the succeeding pages, since the pandemic of 1918-19 there have occurred for the country as a whole six brief periods of rather sharply defined increases in mortality from respiratory diseases. (See fig. 3.) These increases have manifested themselves in so clear-cut a manner from the point of view of duration, spread, and sharpness in rise and fall, as to justify the use of the term "epidemic." Judging by the data for this article, these six epidemics caused in excess of the normal seasonal expectancy about 250,000 deaths recorded as influenza and pneumonia, or about half as many deaths from these causes as occurred in the United States during the great pandemic of 1918-19. Of the total of 250,000 excess deaths recorded as influenza and pneumonia, about 50,000 occurred during the epidemic of the winter of 1928-29 and about 100,000 during the epidemic of 1920.² If in these same epidemic periods the excess deaths from all causes be taken as the measure of the severity of the epidemics, the estimated deaths would be considerably larger.

SOURCE OF DATA FOR THE STUDY

To study in any detail the rise and fall of death rates during the epidemics which come under consideration, it is essential that the data be used in weekly intervals. Since the data for the country as a whole are not published in shorter periods than monthly intervals, it was deemed advisable to consider influenza and pneumonia deaths in a group of cities that have been sending to the Public Health Service weekly reports of deaths from a number of causes, among them being influenza and pneumonia. Since January 1, 1925, there have been published in the Public Health Reports weekly death rates from influenza and pneumonia for a group of about 95 cities and for groups of cities in each of the nine geographical areas of the United States. Data were available for carrying these rates back to January 1, 1920, for a large proportion of the cities. Figure 1 shows the locations of the 95 cities and also the geographical areas according to which they are classified. Table 3 in the appendix lists the cities and gives their populations.

² Rough estimates based on the whole registration area for the first four of the six epidemics (no data are available on the last two) indicate that the estimate of 250,000 excess deaths reported as influenza or pneumonia in the whole United States during the six epidemics, which estimate was based on excess rates in 95 cities, is not more than 5 or 10 per cent too high.

These 95 cities, with an estimated population in 1928 of 30,700,000, were selected chiefly on the basis of their geographical distribution, so that every section of the United States would be represented in

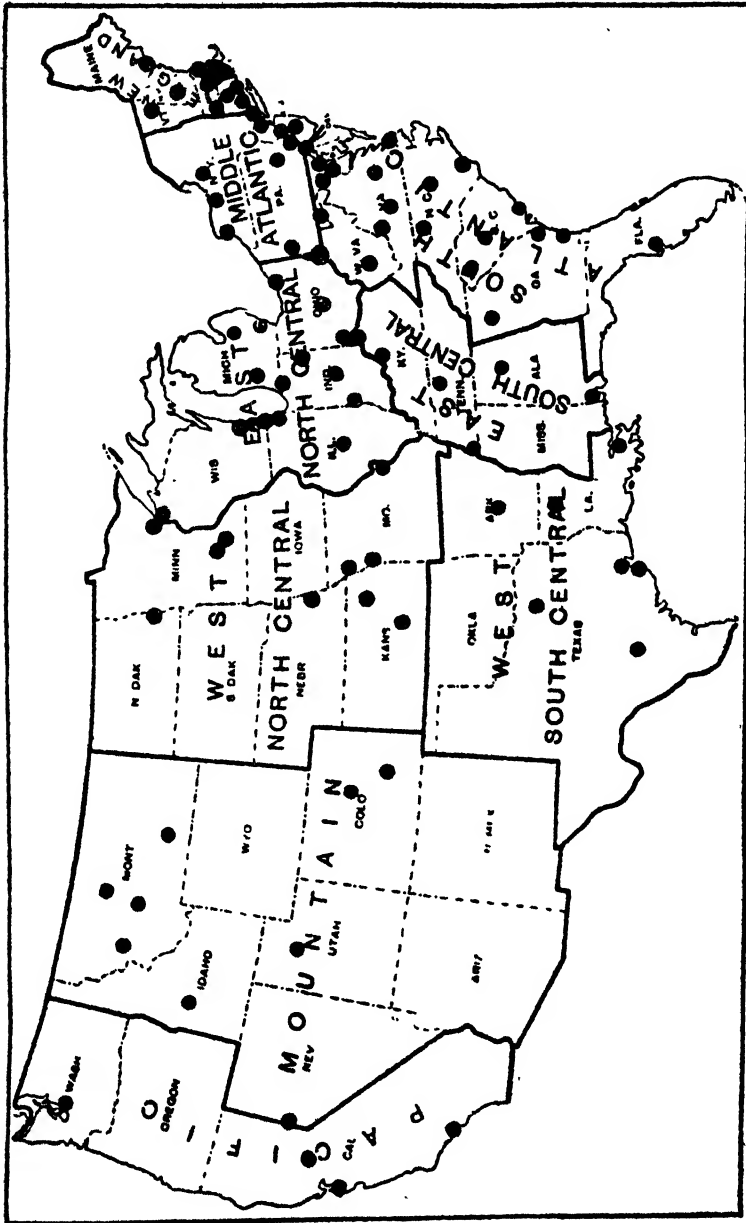


FIGURE 1.—Locations of the 95 cities whose influenza and pneumonia mortality records are the basis for this study. (For a list of the cities and their populations, see Appendix, Table 3)

the group. They include a number of rather small cities, such as Helena and Missoula, Mont., and Reno, Nev., with populations of little more than 12,000. The total enumerated population of the 95

cities was in 1920 about 26,500,000, or approximately the same as that of the 68 cities in the United States that were 100,000 or more in population in 1920. The distribution of this group of 95 cities, however, is quite different from the distribution of the large cities of

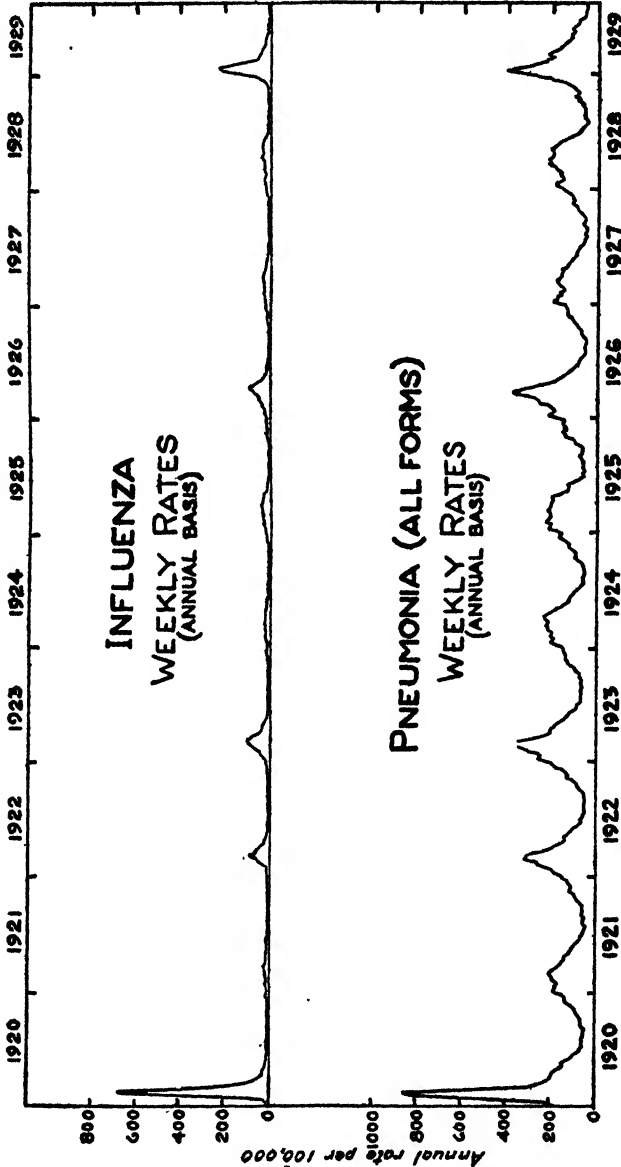


FIGURE 2.—Weekly mortality from influenza and pneumonia in a group of about 95 cities in the United States, 1920-1929

the United States. Of the cities of 100,000 or more population in 1920, Denver and Salt Lake City are the only ones in the whole mountain area. In fact, of the 68 cities that had 100,000 or more population in 1920, only 16 are west of the Mississippi River and

only 8 are west of the one-hundredth meridian, which cuts through the Dakotas, Nebraska, Kansas, Oklahoma, and Texas. This fact is emphasized to indicate that the 95 cities from which data for this paper are taken are geographically much more representative of the

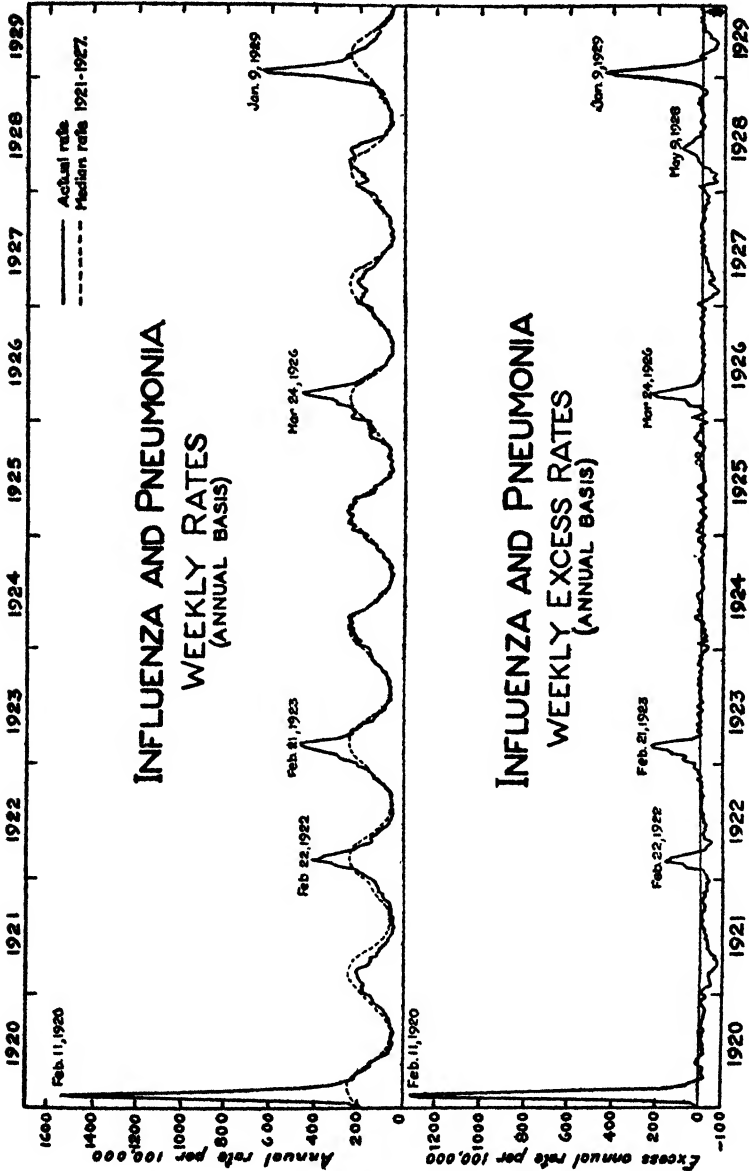


FIGURE 3.—Weekly total and excess influenza-pneumonia mortality in a group of about 95 cities in the United States, 1920-1929. Dates on graph are middle (Wednesday) of the peak weeks. (Excess over median rates for corresponding weeks for the period 1921-1927. The 52 medians representing "normal" or "expected" rates for the different weeks of the year were smoothed by a 5-period moving average before the excesses were computed.)

United States as a whole than an equal population drawn only from the large cities. So far as the rural population of the United States is concerned, it, obviously, can not be represented in any group of cities. Since data covering the recent epidemic are not available for

the total United States, the urban population is about the only group that can be studied at present.

INFLUENZA IN THE GROUP OF CITIES CONSIDERED AS A WHOLE

Figure 2 shows for the group of 95 cities as a whole the weekly recorded death rates³ from influenza and from pneumonia during the period 1920-1929. The deaths credited to influenza serve to indicate the presence of an epidemic, but it will be noted that at every period when there is a definite peak of influenza there is also quite a definite peak in deaths credited to pneumonia. At the same time, it will be seen that there is a definite seasonal rise and fall in the death rate from pneumonia, and, therefore, the peaks in the pneumonia rate can be considered a part of the influenza epidemic only in so far as they exceed the pneumonia rates that would be expected to prevail at the particular season of the year when the epidemic occurs. The best method of approximating the extent of the epidemics seems, therefore, to combine influenza and pneumonia and compute the excess of that death rate over some expression which represents the normal seasonal death rate from these diseases.

In Figure 3 there is plotted the weekly death rates from influenza and pneumonia combined. Superimposed is a broken line representing the median weekly rates during the 7-year period 1921-1927. After determining the median of the seven rates for each calendar week, the 52 medians representing normal seasonal mortality from influenza and pneumonia were smoothed by a 5-period moving average, and this smoothed series of 52 medians is repeated from year to year in Figure 3. Since there is little or no evidence of any trend in the influenza-pneumonia death rates since 1920, this simple method seems to be fairly adequate to eliminate seasonal variation. As may be seen from the graph, a few years during this period stand out as having exceptionally low rates. Throughout the year 1921 the rates are somewhat below the median rate. The same is true of a part of the year 1922, except during the definite epidemic that occurred in that year, and the year 1927 is also below the median for a considerable period during the winter. During the other years the median seems to represent fairly well the normal or expected seasonal variation. Because of its simplicity, the median was selected rather than a more complicated method which might have given slightly more accurate results.⁴

³ Nearly all of the rates used in this article are on an annual basis. An annual rate for a week is the rate that would occur in a year if the daily average number of deaths for the week continued throughout a year.

⁴ It is realized that because of the frequent epidemics occurring for the most part in the early months of the calendar year, the median for that period of the year may be unduly increased by the epidemic items. Because of this fact, the excess death rates are a minimum statement of the extent of the excess mortality recorded as influenza and pneumonia.

In the lower half of Figure 3, there have been plotted the deviations from this median seasonal curve. This process serves to put each epidemic on the same base line regardless of whether it occurred at a period when the normal seasonal mortality was at its height or at a period later in the spring when lower rates would be expected. The six epidemics already referred to as occurring since January 1, 1920, may now be clearly seen on this graph. The first had its peak in February, 1920. After a period of nearly two years during which the influenza and pneumonia mortality was somewhat below the median rate, a small epidemic occurred with its peak in February, 1922, and a somewhat larger epidemic with its peak in February, 1923. The last nine months of 1923 and all of 1924 and 1925 are relatively free from influenza, so far as the data for the 95 cities as a group indicate its presence. In 1926 an epidemic of about the magnitude of that of 1923 occurred fairly late in the spring, having its peak in the latter part of March. The mortality rates during the year 1927 and in the early months of 1928 were somewhat below the median rates, but in the late spring of 1928 a definite but small peak occurred, the maximum coming in May. In the late fall of 1928 there began the epidemic of 1928-29, which proved to be the most serious since 1920.

The extent of the recorded influenza-pneumonia mortality during these various epidemics may be judged moderately well by the size of the maximum weekly excess death rate; but a better measure is the total excess death rate during the whole epidemic. In Figure 3 the maximum weekly excess rate is represented by the height of the peak and the total excess rate by the area under the whole curve which represents the epidemic.

To estimate the total excess rate there must be selected dates of beginning and ending of the epidemic and the exercise of judgment would enter into the selection. However, a matter of the inclusion or exclusion of a week or two when the rate is hardly above the normal or median rate would not change greatly the total excess as indicated by the total area under the curve. In computing the total excess rate for the purposes of this study, the period of the epidemic was considered as beginning when the rate was definitely above the median and as ending when the curve had returned to approximately the median rate, between these dates the positive excesses being added and considered as the total excess rate.⁵ The sum of annual rates for such a period would be without meaning; but when the sum is reduced to an actual basis by dividing by the number of weeks in a calendar year, we obtain an excess rate per 100,000 people for the

⁵ The last two columns of Table 2 show just what weeks were included as above normal for each epidemic.

whole epidemic, whether that excess occurred in a period of 2 or of 10 weeks.⁸

In Figure 4 the total excess influenza-pneumonia death rates for each of the epidemics are shown and also the maximum weekly excess rate. The total excess rate for the 1923 epidemic was slightly greater than that of 1926, but the maximum excess rate in the latter epidemic was about the same as in 1923. The 1920 outbreak was of a very explosive character, spreading over the whole country in a short

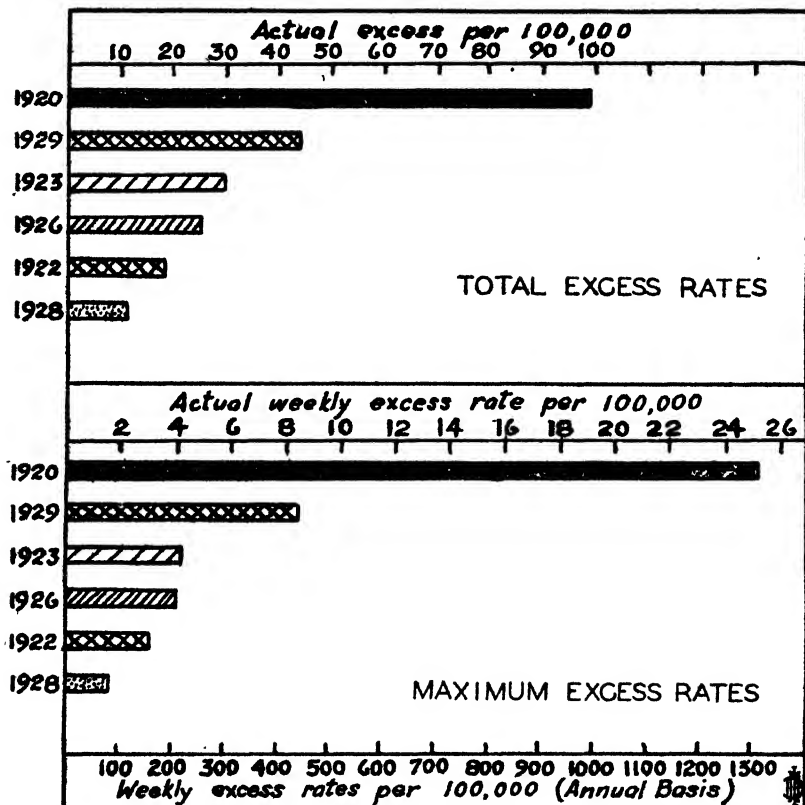


FIGURE 4.—Total excess influenza-pneumonia mortality rate during the whole epidemic and the maximum weekly excess rate for each epidemic in a group of about 65 cities in the United States, 1920-1929. (Excess over median rates for corresponding weeks for the period 1921-1927. (Correction made for 1922 and other details of computation are described in footnotes to Table 1)

time. The maximum weekly excess rate during that epidemic was nearly three times the corresponding rate during the epidemic of 1928-29, but the total excess was only a little more than twice as

⁸ As may be seen from the graphs already presented, the median rate does not give a correct base line from which to measure the excess for the year 1922, the rate before and after that epidemic being consistently below the median rate. In computing the total excess for this epidemic, therefore, a correction was made so that the excess for this outbreak is measured from a point approximating the rate in the months immediately before and after the epidemic. The amount of correction was 25; in other words the excess above a line 25 units (in the rate per 100,000) below the zero base line was computed instead of the excess above the zero base line or median (Fig. 3.)

great in 1920 as in 1928-29. The difference is due to the fact that the 1928-29 epidemic, although not so explosive, continued over a somewhat longer period. On the whole there is quite a high correlation between maximum weekly excess rates and total excess rates.

INFLUENZA EPIDEMICS IN CITIES CLASSIFIED ACCORDING TO GEOGRAPHIC LOCATION

As already noted, the cities were classified according to the geographic area in which they are located and rates computed for nine groups of cities representing the nine geographical areas of the country. By computations like those already outlined for the group of cities as a whole, a similar representation of epidemics that have occurred in the cities of each geographical area was secured. From these data we are able to study, for each of the nine geographical areas, (a) the median or expected death rates in the different weeks of the year, (b) the severity of each epidemic as indicated by the total excess recorded influenza-pneumonia death rate, (c) the date of the maximum rate in each epidemic, and (d) the area in which the epidemic began and the rapidity of its progress to other sections of the country.

Figure 5 shows the median influenza and pneumonia weekly death rates, 1921-1927, for each geographical area. These medians were computed and smoothed as already described in connection with the medians for all sections combined. The median rates for the nine areas are plotted in three sections of the figure, the medians for all sections combined being repeated for comparison. It will be noted that in so far as the median influenza-pneumonia death rates are concerned, the cities of the southern sections have higher rates than those of the more northern sections. This fact may have considerable significance, but, on the other hand, may be due solely to the presence of large numbers of Negroes in the southern sections, with higher mortality from pneumonia and other respiratory diseases. A comparison of influenza and pneumonia death rates among white persons in Southern States with rates in the more rural of the Northern States for the years between 1910 and 1920 suggests that the presence of the large Negro population in the South may be the factor which causes the high median rates, inasmuch as the rates for white persons in the South are as low as, if not lower than, the rates in Northern States where the Negro population is negligible. The data available for the present study are not separated by color. The excess rates are measured from the medians for each section, both the median and the total rates being for white and colored combined. The effect on these rates of the large colored population in the South is mentioned merely as one of the possible explanations of the rather high median rates in southern cities.

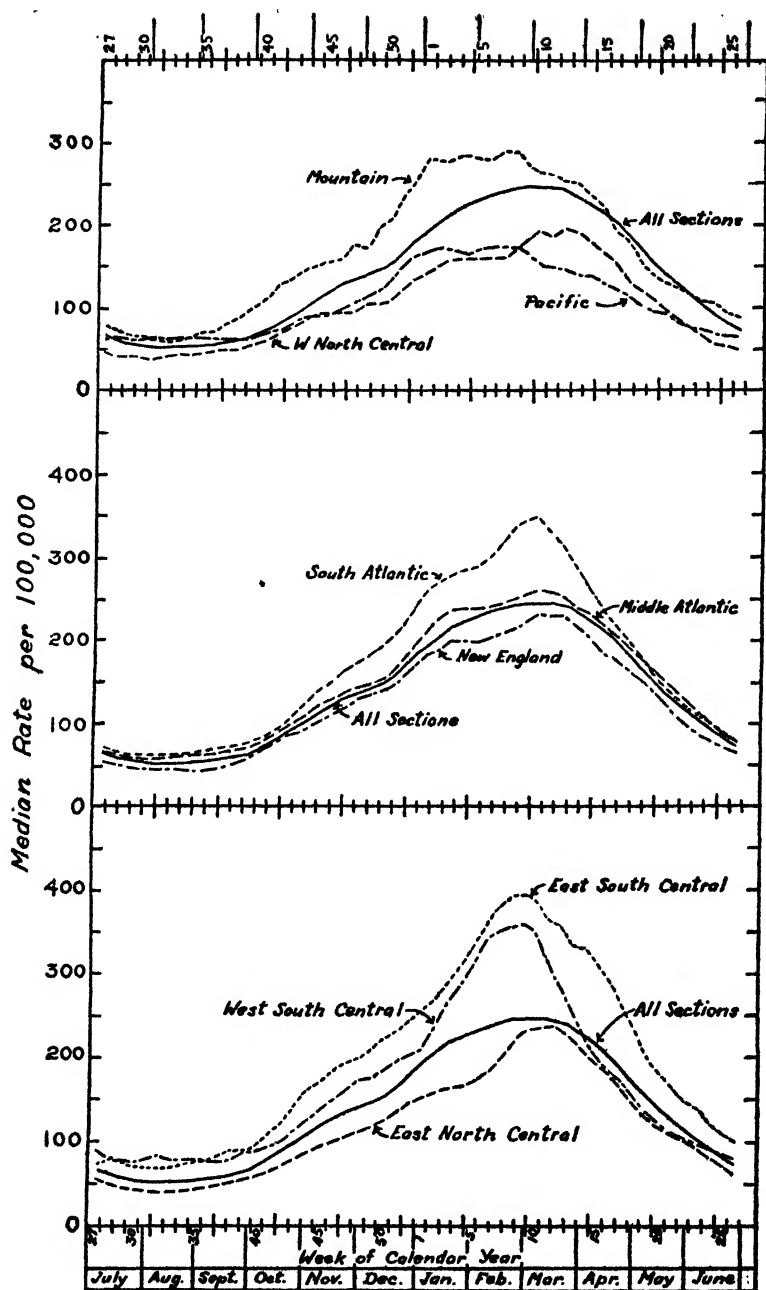


FIGURE 5.—Weekly median influenza-pneumonia mortality rates (annual basis) in a group of cities in each geographic section of the United States, 1921-1927. (Each series of 52 median rates for the different weeks of the year has been smoothed by a 5-period moving average)

Figure 6 shows for the cities of each geographical area the deviations from the median rates for that area (excess rates), just as Figure 3 shows for all cities combined the deviations from the median rates. For some of the areas the total population of the cities considered is not very large and there is considerable chance variation in the rates. This is particularly true of cities of the Mountain area and to some extent of the East and West South Central cities.

The relative severity of the different epidemics has been considered for the total group of cities. It is apparent from Figure 6 that not every epidemic affected every area, and it is also true that not every epidemic affected every area equally. For example, in the cities considered as a whole, the 1923 epidemic was considerably greater than that of 1922, but on the Pacific coast and in the cities of the Mountain area the 1922 epidemic was of much greater importance than that of 1923. On the Pacific coast the 1926 epidemic was likewise unimportant. On the other hand, it will be noted that certain sections experienced epidemics of considerable proportions in years that appeared approximately normal so far as the group of cities as a whole was concerned, notably the West South Central cities in 1925 and the Mountain cities in the winter of 1920-21.

For the cities as a whole the maximum weekly excess rate in the 1928-29 epidemic was about one-third of the corresponding rate in the 1920 epidemic, but in the East South Central area the maximum weekly excess rate in the 1928-29 epidemic was actually higher than the corresponding rate in the same cities in 1920, and in the West South Central cities the maximum rates were about the same in the two epidemics. These facts indicate the great variation in the severity of the various epidemics in different localities. If data were examined for individual cities there would, of course, be even greater variations than those indicated for these groups of cities. The six epidemics that have been mentioned as occurring since January 1, 1920, were more or less nation-wide in extent, but in every case except the first and the last epidemic there were whole sections in which the outbreak was very small, or even completely absent.

There is an exceedingly marked synchronization in the occurrence of the epidemics. The similarity in the times at which the epidemics occurred in different sections of the country is the most striking feature shown in these charts. Differences of a few weeks in the dates of the peaks of the epidemics in different sections do occur, but they can not be detected when the graphs are drawn on the scale used in Figure 6. The spread of the epidemics from one section of the country to another will be considered later.

As mentioned in connection with the discussion of the 95 cities considered as a whole, the heights of the peaks in Figure 6 are not always accurate indicators of the severity of the epidemics, a much

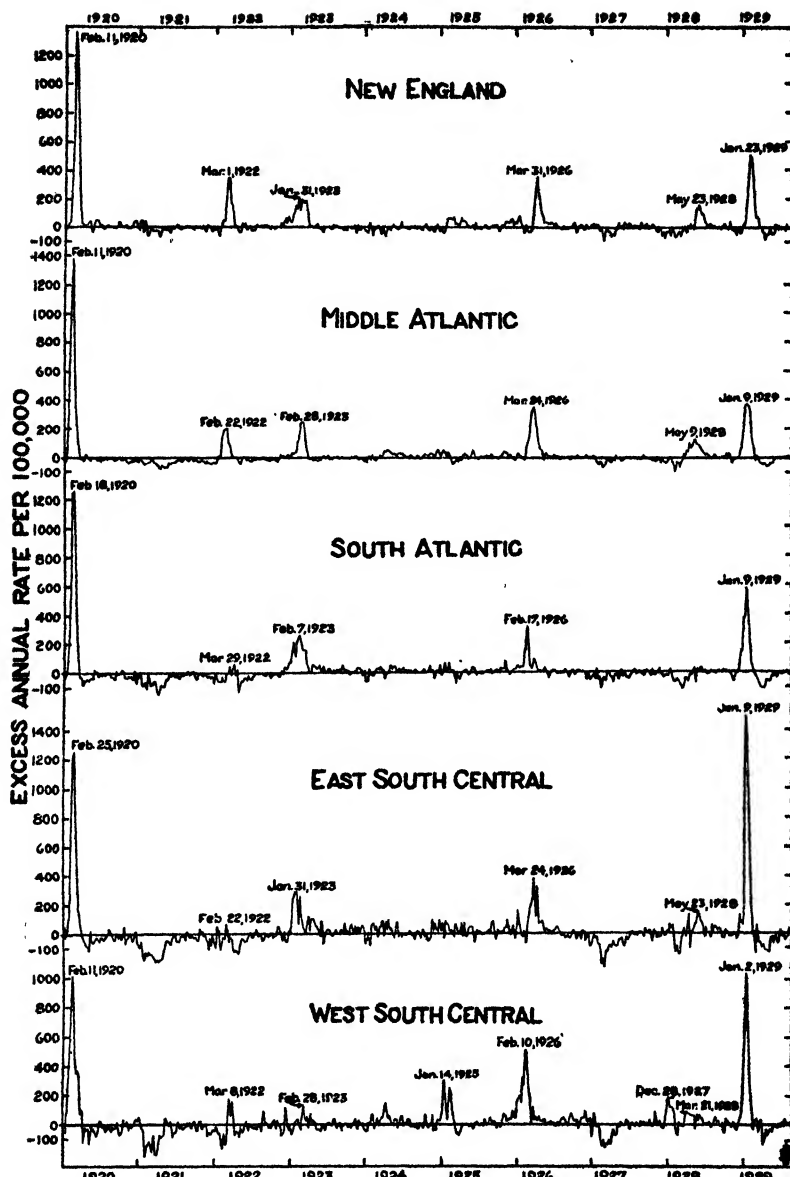


FIGURE 6.—Weekly excess influenza-pneumonia mortality rates (annual basis) in a group of cities in each geographic section of the United States, 1920-1929. Dates on graph are middle (Wednesday) of peak weeks. (Excess over median rates in the same geographic section for corresponding weeks for the period 1921-1927. For each section the 52 medians representing "normal" or "expected" rates for that group of cities for the different weeks of the year were smoothed by a 5-period moving average before the excesses were computed)

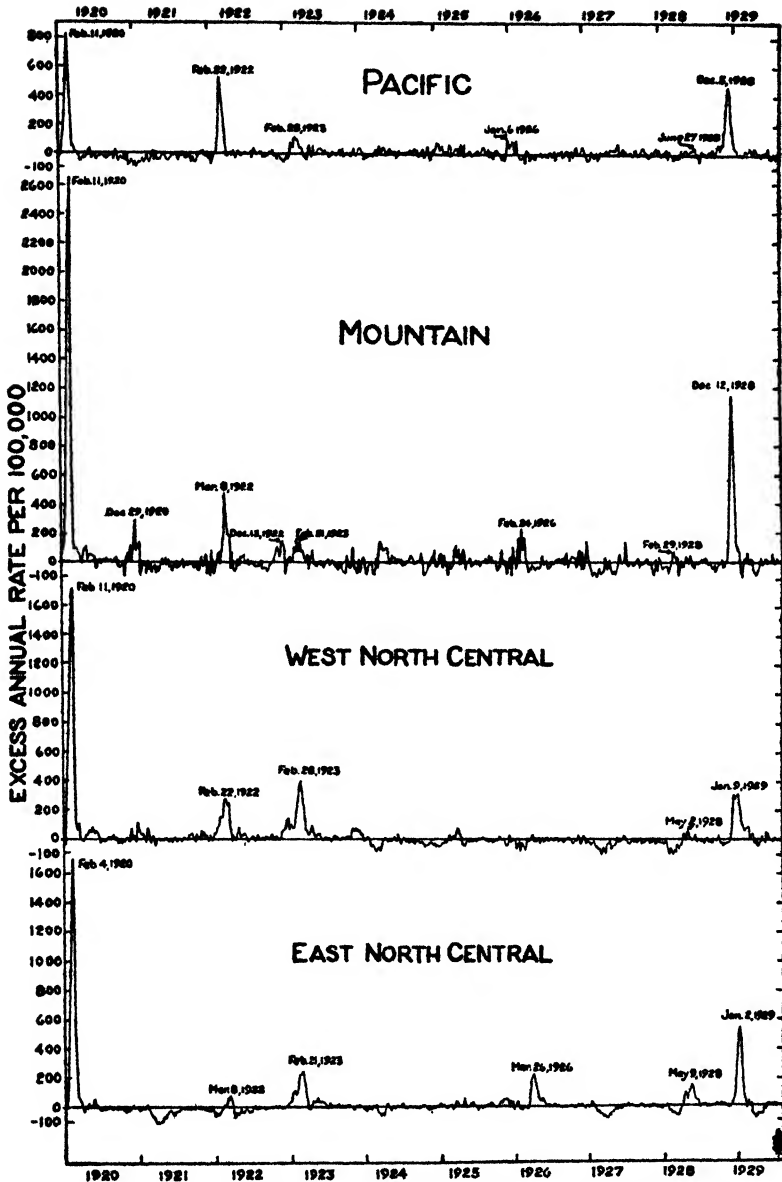


FIGURE 6 (continued) —Weekly excess influenza-pneumonia mortality rates (annual basis) in a group of cities in each geographic section of the United States, 1920-1929. Dates on graph are middle (Wednesday) of peak week

better measure being the total excess rate that occurred during the whole epidemic. Total excess rates were computed for each epidemic in each geographical area in the manner already described for the group of cities as a whole. Figure 7 shows graphically these total excess rates. The same graph includes for comparison the maximum weekly excess rates for each section and epidemic.

TABLE 1.—*Total excess influenza-pneumonia death rate and the maximum weekly excess death rate in epidemics in the cities of different geographic sections of the United States, 1920-1929*¹

Epidemic	All cities	New England	Middle Atlantic	South Atlantic	East North Central	East South Central	West North Central	West South Central	Mountain	Pacific
Total excess ¹ influenza-pneumonia death rate per 100,000 during whole epidemic										
ACTUAL BASIS										
1920.....	99.3	96.6	95.2	94.2	109.4	99.1	121.0	91.2	159.5	57.7
1922.....	18.3	29.5	24.7	9.4	11.4	16.0	34.8	14.6	36.2	36.3
1923.....	20.9	36.6	26.5	42.7	32.2	44.0	53.3	6.7	17.6	11.3
1926.....	25.3	30.0	41.2	26.2	22.2	38.2	None	58.8	16.8	9.3
1928 (spring).....	11.6	15.4	20.9	None	17.9	11.9	4.9	13.7	7.7	None
1928-29 (winter).....	44.4	42.3	43.0	47.6	43.7	92.0	42.8	68.2	68.7	43.0
Maximum ² weekly excess ¹ influenza-pneumonia death rate per 100,000										
ACTUAL OR WEEKLY BASIS										
1920.....	25.2	26.2	26.5	24.4	32.5	24.5	33.0	19.5	50.8	15.5
1922.....	3.1	5.9	4.3	1.5	2.0	2.1	5.0	3.9	7.0	8.5
1923.....	4.1	3.4	4.7	4.7	4.4	5.4	7.1	1.4	2.5	1.9
1926.....	4.0	5.5	6.3	4.4	3.9	5.3	None	8.1	3.1	1.4
1928 (spring).....	1.6	2.6	2.1	None	2.5	2.3	8	1.5	1.2	None
1928-29 (winter).....	8.4	9.7	7.2	11.2	10.6	28.8	6.2	19.9	22.2	9.0
ANNUAL BASIS										
1920.....	1,312	1,360	1,381	1,270	1,697	1,279	1,723	1,017	2,650	810
1922.....	162	306	224	76	106	107	262	205	366	143
1923.....	213	179	241	244	231	281	370	71	131	99
1926.....	206	259	331	232	203	277	None	424	160	75
1928 (spring).....	83	138	112	None	130	120	41	76	60	None
1928-29 (winter).....	440	507	376	584	553	1,504	321	1,038	1,157	468

¹ Excess over the median rates for corresponding weeks for the period 1921-1927. The series of 52 medians representing "normal" or "expected" rates for the different weeks of the year were smoothed by a 5-period moving average before the excesses were computed.

Because the rates in nonepidemic weeks of 1922 are nearly all lower than the median rate 1921-1927, a correction was made for that epidemic by measuring the excess not over the zero base line representing the median rate (fig. 3) but over a line parallel to the base line but 25 points (in the rate per 100,000) below it. The amount of this correction varied in the different geographic areas as follows: New England 20, Middle Atlantic 25, South Atlantic 45, East North Central 40, East South Central 80, West North Central 0, West South Central 80, Mountain 20, Pacific 10. All of the 1922 excesses given in this table and plotted in figs. 4 and 7 are computed from the corrected base line.

² Because of the considerable irregularity in the rates for the different weeks, particularly in the less populous sections, the excess rates for the 4 minor epidemics (1922, 1923, 1926, and the spring of 1928) were smoothed by a 3-period moving average and the maximum rates given in this table and plotted in figs. 4 and 7 are from the moving average curve. For these minor epidemics the maxima therefore represent the average rate in the three highest consecutive weeks. For the 1920 and the 1928-29 epidemics, no moving averages were used. Also, in computing the total excess rate (shown in the top section of this table) the unsmoothed values were used in all the epidemics.

Considering first the recent epidemic of the winter of 1928-29, it may be seen that the total excess rates in six of the different sections are remarkably close together. Reference to Table 1 shows that the rates for these six sections vary only from 42 to 48 per 100,000 persons.

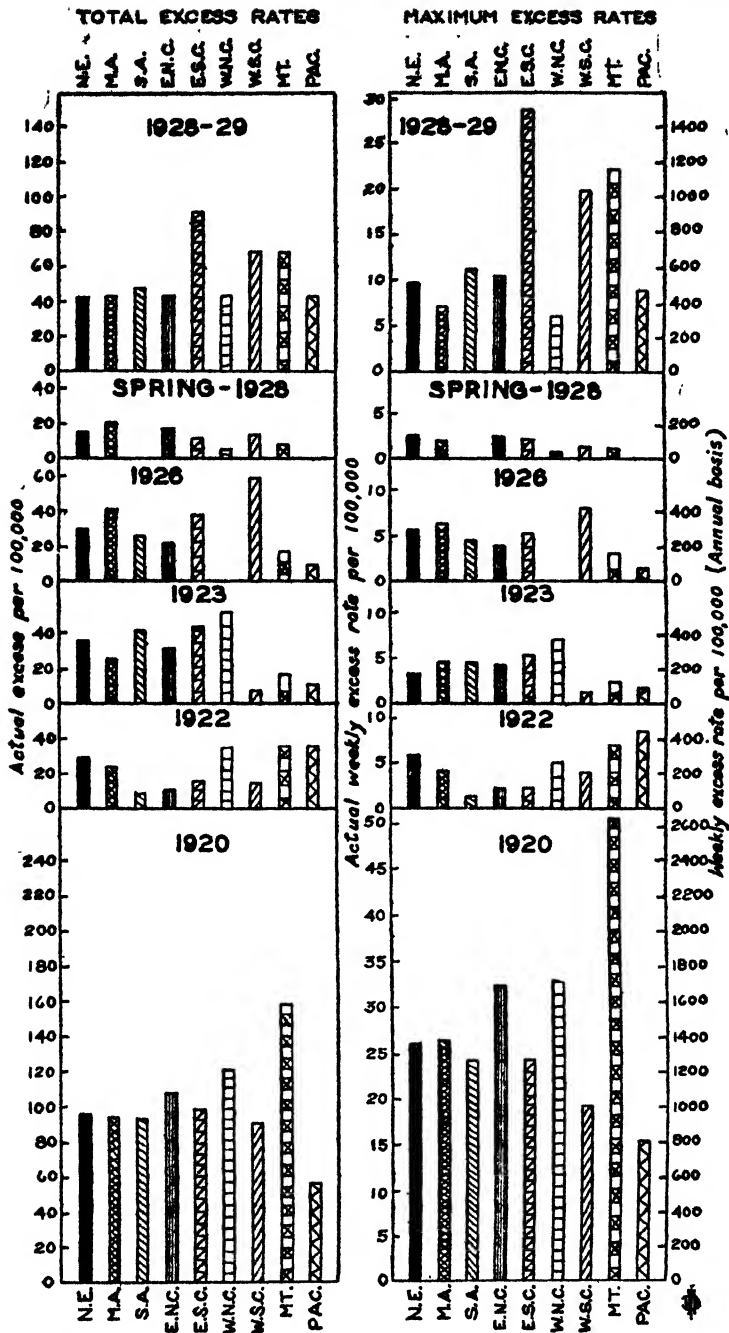


FIGURE 7.—Total excess influenza-pneumonia mortality rate during the whole epidemic and the maximum weekly excess rate for each epidemic in a group of cities in each geographic section of the United States, 1920-1929. (Excess over median rates in the same geographic section for corresponding weeks for the period 1921-1927. Correction made for 1922 and other details of computation are described in footnotes to Table 1)

The total excess rates for the other three sections are somewhat higher, the East South Central having the greatest excess, about 92, and the West South Central and the Mountain cities having rates of 68 and 69 per 100,000, respectively. There appears to be greater similarity in the total excess rates in the different sections in this recent epidemic than in the instance of any of the other epidemics shown in Figure 7. As already mentioned, there are, in the case of each of the four smaller epidemics, 1922, 1923, 1926, and the spring of 1928, geographic sections that did not show any excess deaths or that showed only a very slight excess over the median rate. In the 1920 epidemic every section had a considerable excess, but it was materially less in the Pacific cities than in the other areas. The majority of the sections had total excess rates of between 90 and 100, or just about twice the excesses of 40 to 50 per 100,000 that were shown by the majority of the sections in the 1928-29 epidemic.

It appears from Figure 7 that the section that is high in one epidemic is not necessarily high in another. The East South Central cities that had the highest excess in 1928-29 were not excessively high in any of the preceding epidemics, and in at least two instances were considerably below the average. The Mountain cities had a very high excess in the 1920 epidemic and were among the higher areas in 1922 and 1928-29, but were rather low in the other three epidemics. Judging from Figure 7, it could not be said that there was any great tendency for either a positive or a negative correlation between these different epidemics.

The 1922 outbreak seemed to be less severe in the central and southern parts of the country, the East North Central, West and East South Central, and the South Atlantic cities all being among the lower sections. The 1923 epidemic seemed to be less severe in the West; the Pacific, Mountain, and West South Central cities had lower rates than the other sections. The 1926 epidemic was also low in the Mountain and Pacific cities, but the West South Central cities show the highest rate of any section. The West North Central cities, however, appear to be entirely missed by the 1926 epidemic. The outbreak of the spring of 1928 was of a minor character in all sections, but particularly in the West; the Pacific, Mountain, and West North Central cities had very low rates. The South Atlantic cities seemed to be entirely missed by the epidemic of the spring of 1928, at least so far as mortality was concerned.

PROGRESS OF THE DIFFERENT EPIDEMICS FROM ONE SECTION TO ANOTHER

The remarkable synchronization of the epidemics in different sections of the country has already been mentioned in connection with Figure 6. It has also been mentioned that there were differences of

several weeks in the time of the occurrence of these epidemics, which differences can not be detected from a graph drawn on such a scale as that used in Figure 6. It is, however, of considerable interest to determine in what section each epidemic started and the course and time of its progress to the different sections. Perhaps the most desirable indicator of the difference in the time of occurrence of an epidemic in the different sections would be the date of the beginning of the epidemic or some date very near the time when the epidemic had definitely started. The difficulty of estimating this date has already been mentioned. In sections where the total population of the cities considered is small, such as the Mountain area, it is exceedingly difficult if not impossible to estimate with any degree of accuracy the date of the beginning of the epidemic.

Another measure of the time of occurrence of an epidemic would be the date of the peak day—that is, the date on which the greatest excess occurred—or, if we think of the curves as a frequency distribution, the date of the mode of that distribution. In the larger epidemics, such as that of 1920 and the winter of 1928–29, this peak is very well marked. However, there are instances in which two weeks have nearly the same excess rate, and it seemed more accurate to estimate the peak day of the peak week by an interpolation which would take account of the rates in the two adjacent weeks as well as the rate in the peak week. The usual difference method² of interpolating for the mode in a frequency distribution seems to be a reasonable method of approximating the modal or peak day and it was, therefore, used in this study.

² For details of the method see footnotes to Table 2.

TABLE 2.—Estimated constants of the curves of excess influenza-pneumonia mortality in the various epidemics in cities of different geographic sections of the United States, 1920-1929

Year of epidemic and geographic section									
Modal or peak day ¹	Day on which the specified proportion of the excess deaths had occurred			Inter-quartile range (number of days between first and third quartiles)	Number of days between first quartile and median	Number of days between median and third quartile	Total period considered as above normal	Dates (in calendar weeks) of first and last week	
	One-fourth (first quartile)	One-half (median)	Three-fourths (third quartile)					Total number of weeks	last week
1920									
All cities.....	Feb. 9	Feb. 2	Feb. 10	Feb. 18	16	8	8	12	1-12
New England.....	Feb. 14	Feb. 9	Feb. 15	Feb. 23	14	6	8	12	2-13
Middle Atlantic.....	Feb. 9	Feb. 3	Feb. 9	Feb. 16	13	6	7	8	3-10
South Atlantic.....	Feb. 15	Feb. 6	Feb. 14	Feb. 20	14	8	6	9	2-10
East North Central.....	Feb. 4	Jan. 30	Feb. 5	Feb. 13	14	6	8	11	1-11
East South Central.....	Feb. 22	Feb. 15	Feb. 22	Mar. 1	15	7	8	11	2-12
West North Central.....	Feb. 8	Feb. 1	Feb. 8	Feb. 14	13	7	6	12	1-12
West South Central.....	Feb. 12	Feb. 7	Feb. 15	Feb. 23	21	8	13	12	2-13
Mountain.....	Feb. 9	Feb. 4	Feb. 10	Feb. 17	18	6	7	14	1-14
Pacific.....	Feb. 12	Feb. 8	Feb. 14	Feb. 23	15	6	9	11	2-13
1922									
All cities.....	Feb. 27	Feb. 14	Feb. 25	Mar. 8	22	11	11	12	2-13
New England.....	Feb. 26	Feb. 20	Feb. 27	Mar. 9	17	7	10	13	3-15
Middle Atlantic.....	Feb. 14	Feb. 6	Feb. 16	Feb. 27	21	10	11	14	2-15
South Atlantic.....	Mar. 24	Mar. 7	Mar. 21	Mar. 30	23	14	9	8	8-15
East North Central.....	Mar. 3	Feb. 15	Feb. 27	Mar. 9	22	12	10	10	3-12
East South Central.....	Feb. 24	Jan. 14	Feb. 16	Feb. 28	45	33	12	14	51-12
West North Central.....	Mar. 3	Feb. 7	Feb. 24	Mar. 8	29	17	12	12	1-12
West South Central.....	Mar. 15	Mar. 8	Mar. 14	Mar. 22	14	6	8	5	9-13
Mountain.....	Mar. 12	Mar. 4	Mar. 11	Mar. 20	16	7	9	11	5-15
Pacific.....	Feb. 28	Feb. 22	Mar. 1	Mar. 10	16	7	9	9	5-13
1923									
All cities.....	Feb. 22	Jan. 28	Feb. 15	Feb. 27	30	18	12	17	48-12
New England.....	Feb. 24	Jan. 16	Feb. 7	do.	42	22	20	17	48-12
Middle Atlantic.....	Feb. 22	Feb. 6	Feb. 18	Feb. 28	22	12	10	16	49-12
South Atlantic.....	Feb. 4	Jan. 13	Feb. 2	Feb. 18	36	20	16	17	48-12
East North Central.....	Feb. 16	Jan. 30	Feb. 10	Feb. 22	30	18	12	14	50-11
East South Central.....	Jan. 22	Jan. 21	Feb. 4	Mar. 22	60	44	46	20	1-20
West North Central.....	Feb. 26	Jan. 20	Feb. 18	Mar. 3	42	29	13	18	48-12
West South Central.....	Mar. 1	Feb. 22	Mar. 1	Mar. 8	14	7	7	10	2-12
Mountain.....	Feb. 28	Feb. 9	Feb. 23	Mar. 9	28	14	14	14	1-14
Pacific.....	Mar. 3	Feb. 20	Mar. 2	Mar. 13	21	10	11	9	5-14

1928														
All cities														
New England	Mar 23	Mar 26	Mar 29	Mar 31	Apr 3	Apr 6	Apr 9	Apr 12	Apr 15	Apr 18	Apr 21	Apr 24	Apr 27	Apr 30
Middle Atlantic	Mar 20	Mar 23	Mar 26	Mar 29	Mar 31	Apr 3	Apr 6	Apr 9	Apr 12	Apr 15	Apr 18	Apr 21	Apr 24	Apr 27
South Atlantic	Mar 16	Mar 19	Mar 22	Mar 25	Mar 28	Mar 31	Apr 3	Apr 6	Apr 9	Apr 12	Apr 15	Apr 18	Apr 21	Apr 24
East North Central	Mar 25	Mar 28	Mar 31	Apr 3	Apr 6	Apr 9	Apr 12	Apr 15	Apr 18	Apr 21	Apr 24	Apr 27	Apr 30	May 3
East South Central	Mar 25	Mar 28	Mar 31	Apr 3	Apr 6	Apr 9	Apr 12	Apr 15	Apr 18	Apr 21	Apr 24	Apr 27	Apr 30	May 3
West North Central	Mar 25	Mar 28	Mar 31	Apr 3	Apr 6	Apr 9	Apr 12	Apr 15	Apr 18	Apr 21	Apr 24	Apr 27	Apr 30	May 3
West South Central	Mar 25	Mar 28	Mar 31	Apr 3	Apr 6	Apr 9	Apr 12	Apr 15	Apr 18	Apr 21	Apr 24	Apr 27	Apr 30	May 3
Mountain	Mar 25	Mar 28	Mar 31	Apr 3	Apr 6	Apr 9	Apr 12	Apr 15	Apr 18	Apr 21	Apr 24	Apr 27	Apr 30	May 3
Pacific	Mar 25	Mar 28	Mar 31	Apr 3	Apr 6	Apr 9	Apr 12	Apr 15	Apr 18	Apr 21	Apr 24	Apr 27	Apr 30	May 3
1928 (spring of)														
All cities														
New England	May 13	May 16	May 19	May 22	May 25	May 28	May 31	Jun 3	Jun 6	Jun 9	Jun 12	Jun 15	Jun 18	Jun 21
Middle Atlantic	May 13	May 16	May 19	May 22	May 25	May 28	May 31	Jun 3	Jun 6	Jun 9	Jun 12	Jun 15	Jun 18	Jun 21
South Atlantic	May 13	May 16	May 19	May 22	May 25	May 28	May 31	Jun 3	Jun 6	Jun 9	Jun 12	Jun 15	Jun 18	Jun 21
East North Central	May 13	May 16	May 19	May 22	May 25	May 28	May 31	Jun 3	Jun 6	Jun 9	Jun 12	Jun 15	Jun 18	Jun 21
East South Central	May 13	May 16	May 19	May 22	May 25	May 28	May 31	Jun 3	Jun 6	Jun 9	Jun 12	Jun 15	Jun 18	Jun 21
West North Central	May 13	May 16	May 19	May 22	May 25	May 28	May 31	Jun 3	Jun 6	Jun 9	Jun 12	Jun 15	Jun 18	Jun 21
West South Central	May 13	May 16	May 19	May 22	May 25	May 28	May 31	Jun 3	Jun 6	Jun 9	Jun 12	Jun 15	Jun 18	Jun 21
Mountain	May 13	May 16	May 19	May 22	May 25	May 28	May 31	Jun 3	Jun 6	Jun 9	Jun 12	Jun 15	Jun 18	Jun 21
Pacific	May 13	May 16	May 19	May 22	May 25	May 28	May 31	Jun 3	Jun 6	Jun 9	Jun 12	Jun 15	Jun 18	Jun 21
1928-29 (winter of)														
All cities														
New England	Jan. 7	Jan. 10	Jan. 13	Jan. 16	Jan. 19	Jan. 22	Jan. 25	Jan. 28	Jan. 31	Feb. 3	Feb. 6	Feb. 9	Feb. 12	Feb. 15
Middle Atlantic	Jan. 7	Jan. 10	Jan. 13	Jan. 16	Jan. 19	Jan. 22	Jan. 25	Jan. 28	Jan. 31	Feb. 3	Feb. 6	Feb. 9	Feb. 12	Feb. 15
South Atlantic	Jan. 7	Jan. 10	Jan. 13	Jan. 16	Jan. 19	Jan. 22	Jan. 25	Jan. 28	Jan. 31	Feb. 3	Feb. 6	Feb. 9	Feb. 12	Feb. 15
East North Central	Jan. 7	Jan. 10	Jan. 13	Jan. 16	Jan. 19	Jan. 22	Jan. 25	Jan. 28	Jan. 31	Feb. 3	Feb. 6	Feb. 9	Feb. 12	Feb. 15
East South Central	Jan. 7	Jan. 10	Jan. 13	Jan. 16	Jan. 19	Jan. 22	Jan. 25	Jan. 28	Jan. 31	Feb. 3	Feb. 6	Feb. 9	Feb. 12	Feb. 15
West North Central	Jan. 7	Jan. 10	Jan. 13	Jan. 16	Jan. 19	Jan. 22	Jan. 25	Jan. 28	Jan. 31	Feb. 3	Feb. 6	Feb. 9	Feb. 12	Feb. 15
West South Central	Jan. 7	Jan. 10	Jan. 13	Jan. 16	Jan. 19	Jan. 22	Jan. 25	Jan. 28	Jan. 31	Feb. 3	Feb. 6	Feb. 9	Feb. 12	Feb. 15
Mountain	Jan. 7	Jan. 10	Jan. 13	Jan. 16	Jan. 19	Jan. 22	Jan. 25	Jan. 28	Jan. 31	Feb. 3	Feb. 6	Feb. 9	Feb. 12	Feb. 15
Pacific	Jan. 7	Jan. 10	Jan. 13	Jan. 16	Jan. 19	Jan. 22	Jan. 25	Jan. 28	Jan. 31	Feb. 3	Feb. 6	Feb. 9	Feb. 12	Feb. 15

¹The modal or peak day was estimated by interpolation within the modal or peak week (determined by inspection) of the excess death rates by the method of differences, the following formula being used:

$$\text{Mode} = L + \left[\frac{\Delta f_1}{\Delta f_1 + \Delta f_2} \right] \text{ in which—}$$

L = Lower limit of modal class (first day of peak week).

f = Frequency (excess rate) in modal week.

f_1 = Frequency (excess rate) in week prior to modal week.

f_2 = Frequency (excess rate) in week following modal week.

First and second differences (Δ and Δ^2 , respectively) for use in the formula are computed as follows:

$$\Delta f_1 = f - f_1$$

$$\Delta f_2 = f - f_2$$

$$\Delta^2 f = (f_1 - f_2) - (f - f_1)$$

The expression in the formula which is added to the lower limit of the modal class always comes out in the form of a fraction or decimal less than unity and is in usual frequency distributions multiplied by the class interval and added to the lower limit of the class. This was adapted to the weekly intervals by reducing this decimal to sevenths; if it was less than one-seventh, the estimated modal day was the first day of the week. If it was between one-seventh and two-sevenths, the modal day was the second day of the week, etc. For the minor epidemics (1922, 1923, 1928, and the spring of 1928) the computations are based on the 3-period moving average of the excess rates rather than the actual value. (For details see footnote to Table 1.)

²The median and quartile days were determined in the manner in which those constants are determined for a frequency distribution (the excess rates for this purpose being considered as frequencies), the interpolation within the median or quartile week to estimate the median or quartile day being done, as is usual in computing these constants, on a straight-line basis.

In the case of the four minor outbreaks that occurred between the 1920 and 1928-29 epidemics, the weekly excess rates are in many instances quite irregular. In these epidemics it seemed more accurate to determine the peak week from a 3-period moving average than to determine it from the rather irregular rates. In these minor epidemics (1922, 1923, 1926, and the spring of 1928) the maximum weekly rates shown in Table 1 and Figures 4 and 7 are based on the moving average curve, and, therefore, represent the average rate for the three highest consecutive weeks, although in some instances the actual unsmoothed rate in some other week is slightly higher. In the 1920 and the 1928-29 epidemics no moving averages were used.

Figures 8, 9, 10, and 11 show the weekly excess rates for the cities of each section in each of the epidemics for the short period during which the outbreak occurred. These rates are the same as those plotted in Figure 6, except that the horizontal, or abscissa, scale has been greatly lengthened so that a difference of a few weeks in the occurrence of the peak of the epidemic can be detected. In each figure the geographic sections are arranged from top to bottom in the order of the occurrence of the peak. For example, in the 1928-29 epidemic the Pacific cities had the earliest peak and the Pacific section is, therefore, at the top of the graph, the other sections following in accordance with the dates of the peak days. At the bottom is a graph for the total of all cities combined, and a broken line has been drawn from top to bottom representing the date of the peak day in all cities combined. The sections at the top of the graph, therefore, have their peaks to the left of this line and those at the bottom have their peaks to the right of the line. On all the graphs except the graph for 1920, the distance on the horizontal scale representing an interval of two weeks is equal to the distance on the vertical scale representing an excess rate of 100. In order to carry this same scale for all of these graphs it was necessary to make the 1928-29 graph cover both the left and right halves of the page, but in the instance of the four minor epidemics, all sections are on one-half of the page. For the 1920 epidemic this scale did not seem suitable and the vertical or ordinate scale has been made smaller.

A comparison of the curves for the different geographic sections in these graphs serves to indicate the section in which the epidemic arose and its progress to other sections of the country. However, the same facts can be depicted perhaps even more graphically by maps colored or cross-hatched in such a way that the area first attacked will be the darkest and proceed to lighter shades with the section last attacked as the lightest shade. A series of maps of this character has been prepared and is presented in Figure 12.

With both the charts and maps before us, we may discuss the geographic section in which the various epidemics arose and their direc-

tion and progress to other sections. Considering first the recent epidemic of 1928-29, the excess mortality peak in the Pacific cities

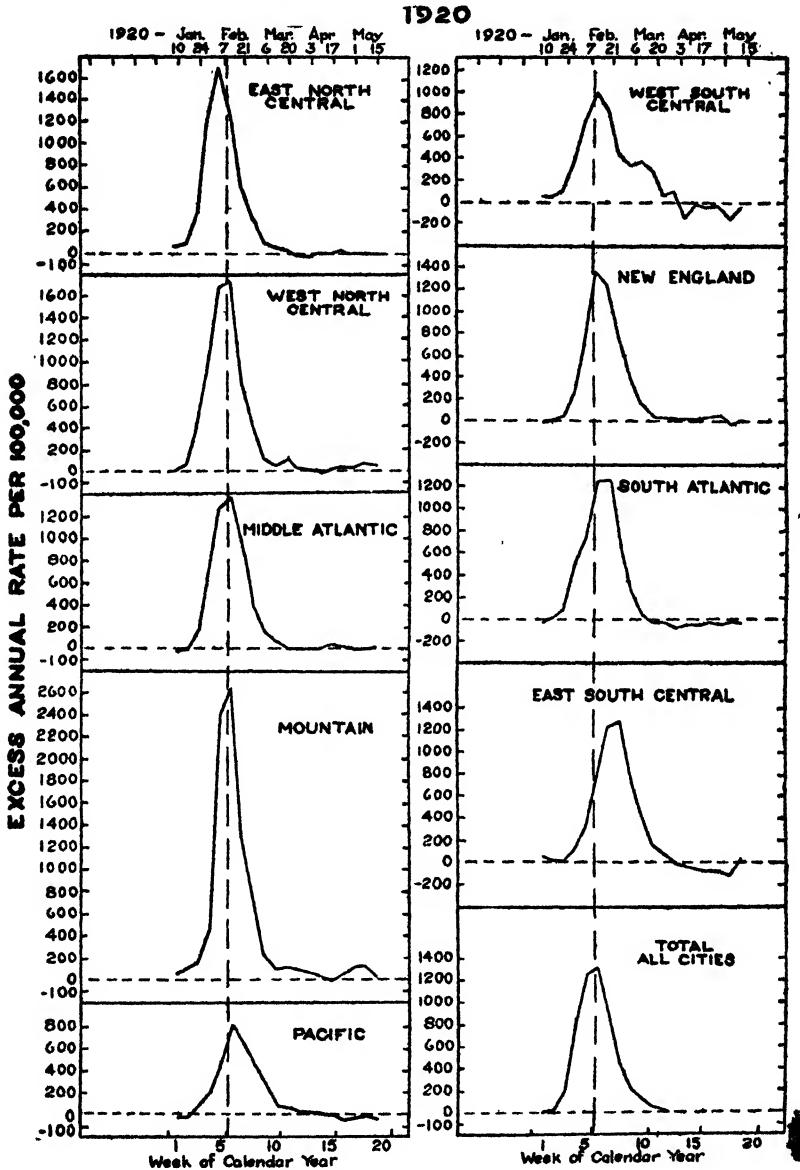


FIGURE 8.—Weekly excess influenza-pneumonia mortality rates (annual basis) in a group of cities in each geographic section of the United States during the epidemic of 1920. Sections arranged in order of dates of peak mortality given in Table 2. (Excess over median rates in the same geographic section for corresponding weeks for period 1921-1927. For details, see footnotes to Table 1)

is estimated as occurring on December 6. Progress across the country as indicated by the dates of the peaks in the various sections is

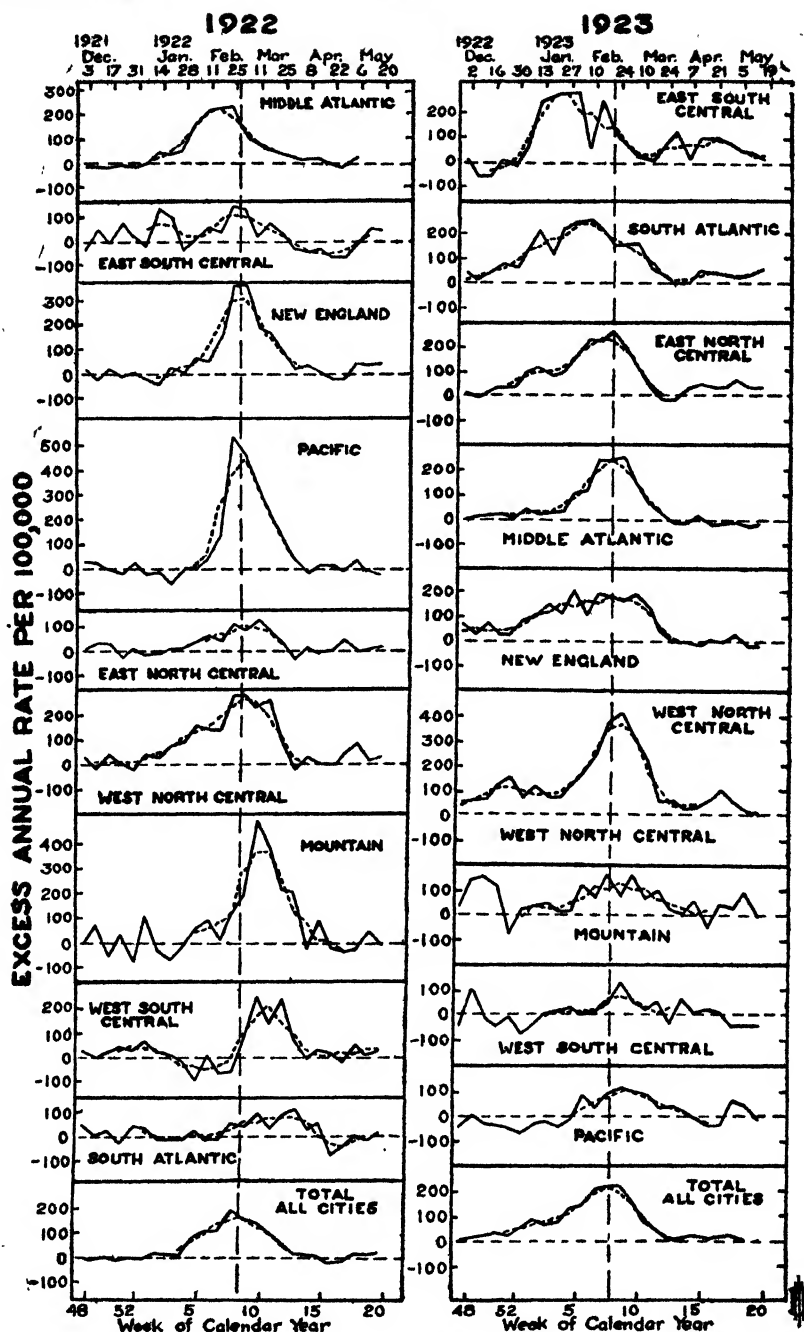


FIGURE 9.—Weekly excess influenza-pneumonia mortality rates (annual basis) in a group of cities in each geographic section of the United States during the epidemics of 1922 and 1923. Continuous line represents actual excess; broken line, 3-period moving average. Sections arranged in order of dates of peak mortality as indicated by the moving average curve and given in Table 2. (Excess over median rates in the same geographic section for corresponding weeks for the period 1921-1927. Correction made for 1922 and other details of computation are described in footnotes to Table 1)

fairly consistent, although it reached the East North Central cities (around Chicago) at about the same time or slightly before the cities of the West North and South Central Sections. Peaks in the East South Central, South Atlantic, and Middle Atlantic sections came practically on the same date. New England came last with a peak about seven weeks later than the peak in the Pacific cities.

The small epidemic of the spring of 1928 seems to have started in the Mountain cities where there is some indication of a sort of double peak. (Fig. 10.) The West South Central cities also exhibit a sort of double peak, the first peak coming in March a few weeks after the first peak of the Mountain section. In fact, there is a peak in December, 1927, about two months earlier than the peak in the Mountain cities, that might be considered a part of this epidemic, but it was so much earlier than the peaks of any other section that in the computations made for this study it was not included as a part of the spring epidemic. Of other sections that showed any excess in this outbreak in the spring of 1928 the peaks all occurred in May, but two coastal regions, the Pacific and South Atlantic cities, were apparently untouched by this epidemic, at least so far as mortality was concerned. The excess death rates in this epidemic of the spring of 1928 are so small, particularly in some of the sections, that these peaks may not indicate the correct progress of the epidemic and no great dependence can be put upon its indicated course.

The epidemic of 1926,⁸ like that of 1928-29, seems to have started on the Pacific coast, but the excess in the Pacific cities was very small. The West South Central and the South Atlantic cities showed the next peaks, and in both of these sections the excess was considerable. A study of the map suggests the possibility of two more or less independent foci of infection from which the epidemics spread to other sections, one being on the Pacific coast and spreading rather slowly to the Mountain cities and possibly to the West South Central cities, the other being on the South Atlantic coast and spreading, again rather slowly, to the East North and South Central, Middle Atlantic, and New England sections. The West North Central cities, it will be noted, were apparently not affected by this epidemic. Whether the idea of the two independent foci is correct or whether it is merely true that the epidemic was very irregular and variable in its extent and severity can not be determined.

The epidemic of 1923 seems to have arisen in the East South Central section, the estimated peak day in those cities being January 22. Progress to the South Atlantic, East North Central, Middle Atlantic, and New England cities is moderately rapid, but apparently the peaks occur in those sections in the order in which they were just

⁸ For other data on the 1926 epidemic, see *The Influenza Epidemic of 1926*. Pub. Health Rep., vol. 41, No. 34, Aug. 20, 1926. (Reprint 1104.)

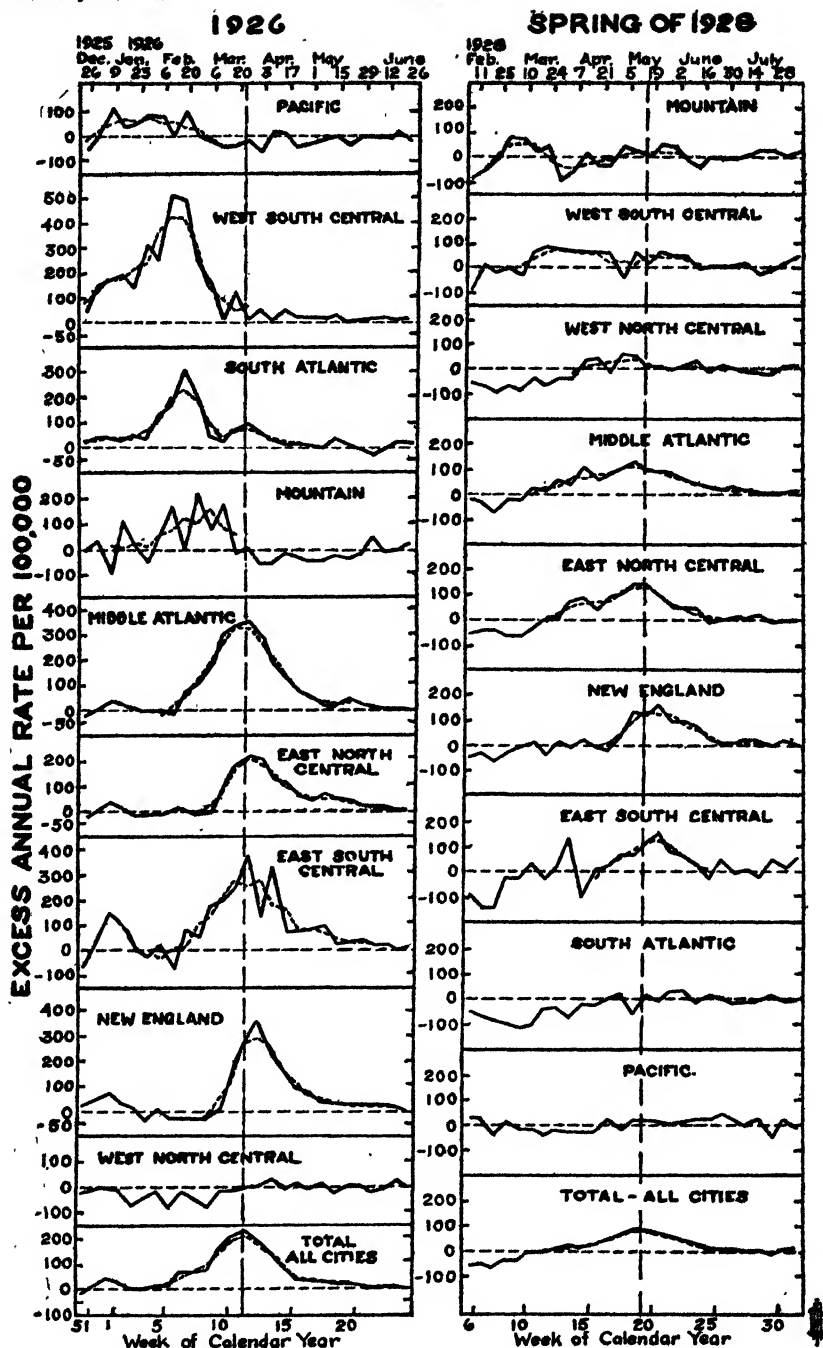


FIGURE 10.—Weekly excess influenza-pneumonia mortality rates (annual basis) in a group of cities in each geographic section of the United States during the epidemics of 1926 and the spring of 1928. Continuous line represents actual excess; broken line, 3-period moving average. Sections arranged in order of dates of peak mortality as indicated by the moving average curve and given in Table 2. (Excess over median rates in the same geographic section for corresponding weeks for the period 1921-1927. For details, see footnotes to Table 1)

named, the estimated New England peak being February 24. The peaks in the four sections lying west of the Mississippi River all come within the week ending March 3, but in the West South Central, Mountain, and Pacific cities the excesses were rather small. As in the epidemic of the spring of 1928, the Mountain cities have a suggestion of a double peak, but the second peak in this instance seemed to be the more definite one and the section has been placed on the map and in the graphs with reference to this peak. The Mountain section includes quite a large area with about nine rather widely scattered cities, and it is possible that the tendency of this section toward double peaks is the result of the rather widely scattered cities included.

It is hard to determine the starting point and the progress of the 1922 epidemic. The Middle Atlantic cities, with a considerable excess, seem to be the earliest section to be affected, with the East South Central and the New England sections as the next in order. However, the peak in the Pacific cities, which had one of the largest excesses, comes at practically the same time as the peak in New England and considerably earlier than the peaks in the other western sections and the South Atlantic cities. The data suggest that the epidemic arose somewhere in the East, probably in the Middle Atlantic section, but that is about all that can be said about it.

The 1920 epidemic, as has already been mentioned, was of a very explosive character. Its beginning seems quite clearly to have been in the East North Central cities (around Chicago), and its spread from there to the east, south, and west is quite definite, but is so rapid that nearly all of the sections had their peak within the same week. There are, however, minor differences in the estimated peak dates, the Pacific and the West South Central peaks coming a few days later than the West North Central and Mountain peaks. The East South Central peak comes last and only a little more than two weeks after the first peak. In spite of the very short duration of this epidemic, it will be remembered that the total excess death rate was about twice what it was in the 1928-29 epidemic, which showed a difference of about seven weeks in the dates of the peaks of the first and last sections affected. Possibly the fact that the epidemic started in the central part of the country and around Chicago, from which there is much traveling in all directions, may have had something to do with the quick spread over the country. It might be noted, however, that the 1923 epidemic, which began in the central part of the country, but in the South, was not nearly so rapid in its spread to other sections. The time distribution of the deaths in the different epidemics will be considered in more detail later.

The method of computing or estimating the total excess death rate for each epidemic has already been discussed. We may compute in a similar fashion the week within which occurs the date on which half

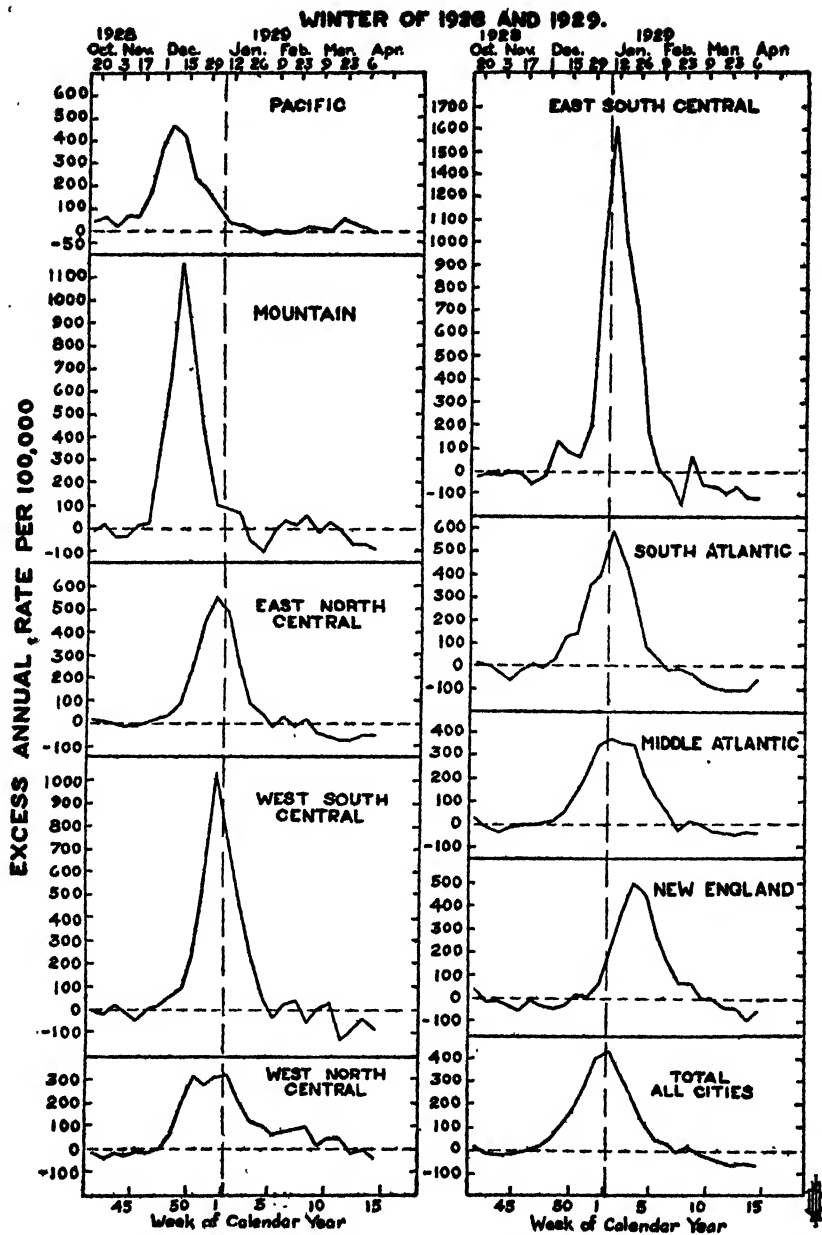


FIGURE 11.—Weekly excess influenza-pneumonia mortality rates (annual basis) in a group of cities in each geographic section of the United States during the epidemic of the winter of 1928-29. Sections arranged in order of dates of peak mortality as given in Table 2. (Excess over median rates in the same geographic section for corresponding weeks for the period 1921-1927. For details, see footnotes to Table 1)

of the total excess deaths had already occurred, and by interpolation within this week, we may estimate the day on which half of the total excess deaths had already occurred. If we think of the curves of the excess death rates, such as those shown in Figures 8, 9, 10, and 11, as representing curves of the frequency of excess deaths in a population of 100,000 in the different weeks, this point would be the median of that frequency curve, or the time prior to which one-half of the deaths had occurred and after which the other half occurred. This median date might well have been used instead of the peak or modal date to indicate the progress of the epidemic from one section to another. In Table 2 both the modal or peak days and the median days are shown, and it will be seen that with some exceptions the general picture of the starting point and progress of the different epidemics over the country would have been the same had the medians been used as that which has already been considered with the peak day as the basis.

TIME DISTRIBUTION OF THE DEATHS IN THE DIFFERENT EPIDEMICS

In a manner similar to that discussed for the median, we may also compute for the different epidemics the date on which one-fourth of the excess deaths had occurred and the date on which three-fourths of the excess deaths had occurred, these two points being comparable to the first and third quartiles, respectively, in the frequency curve of the excess deaths in a population of 100,000. These dates are also shown in Table 2. If we compute the number of days between the first and third quartiles (interquartile range) it will indicate the time within which the central half of the deaths occurred. Because of the indefiniteness of the extreme range of the epidemic, this figure is a better measure of the time-spread of the epidemic than the range would be. Attention should be called to the fact that because of the differences in the areas of the various geographic sections and, of perhaps more importance, the scatter of the cities within those areas, these interquartile ranges are not comparable from one section to another. However, since approximately the same cities are included in the data for each epidemic, it would appear that the interquartile range in one epidemic for the 95 cities as a whole should be comparable to the interquartile range in another epidemic, and that, likewise, the interquartile ranges for a given section should be comparable from one epidemic to another.

Let us consider the time-spread of the different epidemics as indicated by this interquartile range. Considering the whole 95 cities as a group, the interquartile range in 1920 was 16 days, that is, one-half of the excess deaths that occurred in 1920 occurred within a period of 16 days. The same figure for the 1928-29 epidemic is

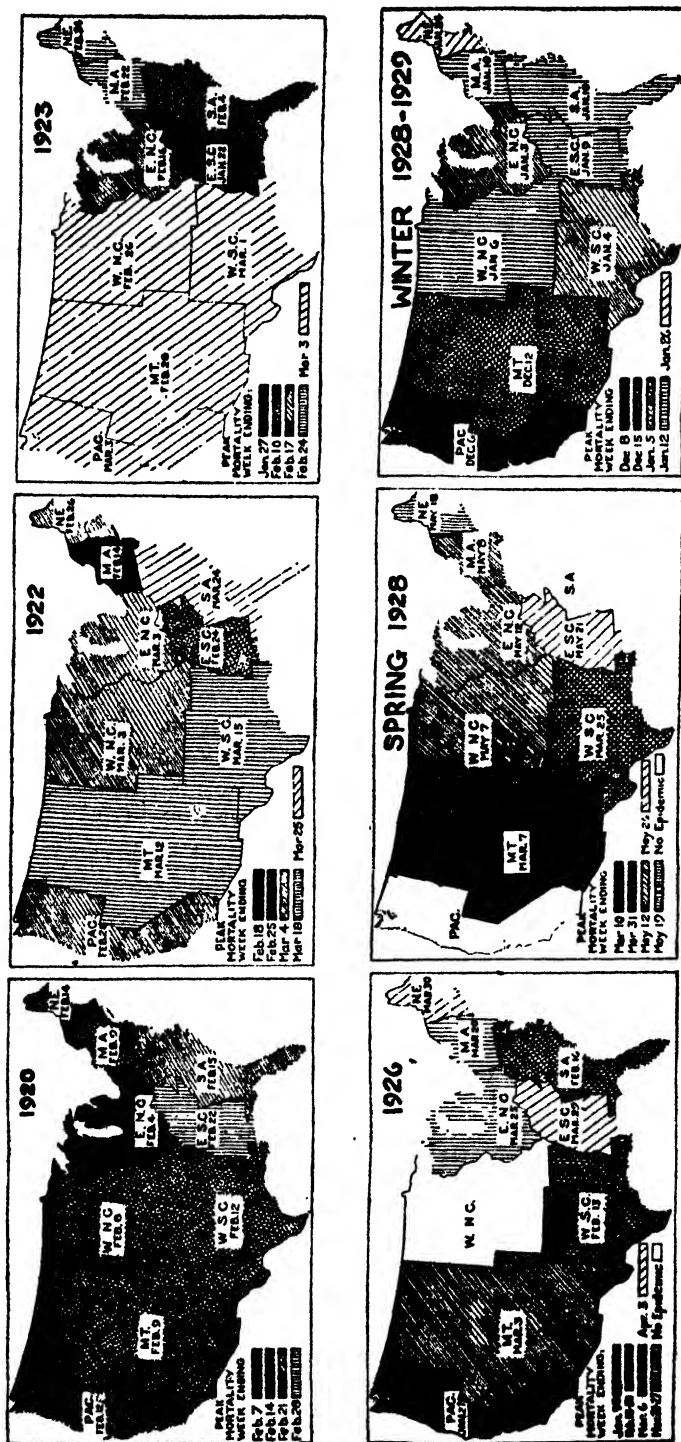


FIGURE 12.—Time of occurrence of each influenza epidemic in cities of the different geographic sections of the United States, 1920-1929. (Darkest sections were first and lightest sections were last to be affected. Dates represent estimated peak days for the sections. For details, see footnotes to Table 2)

21 days, and the figures for the smaller epidemics range from 22 to 30 days, the 1923 epidemic showing the maximum interquartile range of any of the six epidemics. It will be noted that in general the interquartile ranges for the different sections bear out the statement that the 1920 epidemic was concentrated within the shortest time and that the 1923 epidemic was spread over the longest time of any of these six epidemics that have occurred since January 1, 1920.

Table 2 also shows the number of days between the median and the first quartile and between the median and the third quartile. If the curves of the excess death rates are fairly symmetrical—that is, if the rise of the curve to its peak takes about the same number of days as the fall of the curve back to the normal rate—the number of days between the median and the first quartile would be about the same as the number of days between the median and the third quartile. It will be noted from the table that so far as the data for all cities combined are concerned, the two periods are almost identical in length except in the instance of the 1923 epidemic. The rise from the first quartile to the median in the 1923 epidemic consumed 18 days and the fall from the median to the third quartile consumed 12 days, but in no other of these epidemics was there a difference of more than a day between the two figures. It would appear, therefore, that in all of the epidemics except that of 1923 the curves tend to be rather symmetrical.

The facts noted about the time-spread of the different epidemics and the symmetry of the curves may be checked up graphically in Figure 13. In the top section of this figure the graphs for each of the epidemics for all cities combined have been plotted on semilogarithmic paper, the abscissa, or horizontal, scale being indicated in weeks prior to or following the epidemic peak. In other words, the peaks have been brought together on the same vertical line. Added to the six epidemics are the excess rates in a group of 42 cities during the 1918-19 epidemic.⁹ The steepness of the curves in this figure would indicate time-concentration, the steeper the curve the more rapid the percentage increase or decrease from week to week in the excess rate. In the bottom section of the figure the peaks have been superimposed not only on the same vertical line but at the same point. This arrangement makes it even easier to compare the slopes of the curves and, therefore, to estimate the relative rate of rise and fall of the excess death rates in the different epidemics. It will be noted that in conformity with the indications of the interquartile ranges in the different epidemics, the 1923 outbreak was the slowest to rise and the 1920 epidemic had the sharpest rise. There is a fair degree of sym-

⁹ Influenza-pneumonia rates for 1918-19 plotted in Figure 13 are excesses over the median rate for corresponding weeks for the period 1910-1916. (Data from Pub. Health Rep., Mar. 26, 1920 (35: 747).)

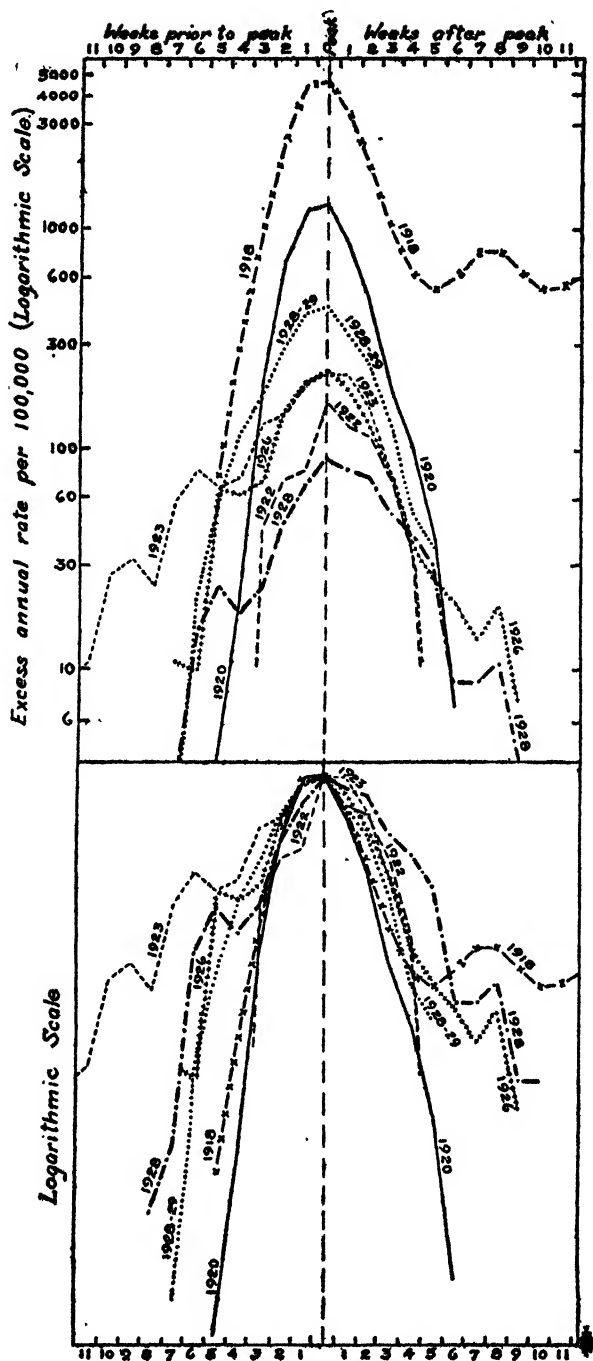


FIGURE 13.—Semilogarithmic curves of the excess influenza-pneumonia mortality rates during the various epidemics in a group of about 95 cities in the United States. (1918 data are for a group of 42 cities)

metry in the curves of the excess rates except for 1923, when the curve rose at a much slower rate than it fell after the peak had been reached. In the 1918-19 epidemic the descent of the curve is interrupted by a second wave.

SUMMARY

This study is based on weekly death rates from respiratory diseases recorded as influenza and pneumonia in about 95 cities of the United States during the period 1920-1929. Cities from every geographical section of the United States are included in the group. Their total enumerated population in 1920 was about 26,500,000 and their estimated population in 1928 was 30,700,000.

From January 1, 1920, to the middle of 1929 six epidemics of more or less national extent have occurred in the United States—1920, 1922, 1923, 1926, spring of 1928, and the winter of 1928-29. (Fig. 3.) Judging by the rates in the 95 cities, which seem to be only slightly higher than rates for the country as a whole, these six epidemics caused in excess of the normal or expected seasonal mortality from respiratory diseases recorded as influenza and pneumonia, approximately 250,000 deaths in the country as a whole—a total of nearly one-half as many deaths as occurred in the United States during the great pandemic of 1918-19. About one-fifth of these deaths, or 50,000, occurred during the recent epidemic of the winter of 1928-29, and two-fifths, or 100,000, occurred during the sharp epidemic of the early months of 1920.

Although these six epidemics were more or less nation-wide in extent, the various sections of the United States were by no means equally affected. In the instance of several of the smaller epidemics there appeared to be whole sections of the country that were not affected. On the other hand, certain sections of the country experienced fairly sharp epidemics in years when the rates for the country as a whole did not indicate any influenza-pneumonia deaths in excess of the median weekly rates. An example of this is an epidemic in the West South Central cities which occurred in the early months of 1925, a year when the remainder of the country appeared to be relatively free from influenza.

The point of origin and direction of progress of these six epidemics varies a great deal. Nearly every one of them arose in a different section of the country. The 1920 epidemic arose in the East North Central section and progressed very rapidly to all other sections of the country. The 1922 epidemic arose in the East, probably in the Middle Atlantic section, and the 1923 epidemic arose in the East South Central section. The 1926 and the 1928-29 epidemics arose on the West Coast, and the little epidemic of the spring of 1928 probably arose in the Mountain or West South Central section.

The rate of progress across the country varies a great deal in the different epidemics. Considering the 95 cities as a whole, however, there is more uniformity in the length of the epidemic. In 1920 the central half of the deaths occurred in a period of about 16 days. In the epidemics of 1928-29, 1922, and 1926 the central half of the deaths occurred in periods of 21, 22, and 23 days, respectively. In the small epidemic of the spring of 1928 the period was 27 days, and in the epidemic of 1923 the period was 30 days. The 1923 epidemic seems to show the least time-concentration of any of these recent outbreaks. In the case of all the other epidemics the excess rate rose and fell at about the same rate, but in 1923 the rise to the peak was considerably slower than the fall of the curve to the normal level again.

Appendix

[Tables 3 to 16]

TABLE 3.—Populations of the 95 cities included in the group for which the influenza-pneumonia death rates from 1920 to 1929 are considered in this study

Geographic section and city	Enumerated population according to the census of 1920 (Jan. 1, 1920)	Estimated population as of July 1, 1928
All sections (95 cities).....	21,511,442	30,663,020
New England (12 cities).....	2,025,331	2,255,363
Portland, Me.....	69,272	78,600
Concord, N. H.....	22,167	22,700
Barre, Vt. ¹	10,008	10,008
Boston, Mass.....	748,000	799,200
Fall River, Mass.....	120,485	131,300
Springfield, Mass.....	129,614	149,800
Worcester, Mass.....	179,754	197,600
Pawtucket, R. I.....	64,248	73,100
Providence, R. I.....	237,505	286,300
Bridgeport, Conn.....	113,555	143,555
Hartford, Conn.....	138,036	172,300
New Haven, Conn.....	162,537	187,900
Middle Atlantic (10 cities).....	9,764,318	10,702,200
Buffalo, N. Y.....	506,775	555,800
New York, N. Y.....	5,620,048	6,017,500
Rochester, N. Y.....	295,750	328,200
Syracuse, N. Y.....	171,717	199,300
Camden, N. J. ¹	116,309	135,400
Newark, N. J.....	414,524	473,600
Trenton, N. J.....	119,280	139,000
Philadelphia, Pa.....	1,823,779	2,064,200
Pittsburgh, Pa. ³	588,343	673,800
Reading, Pa. ¹	107,784	115,400
South Atlantic (21 cities).....	2,371,322	2,946,008
Wilmington, Del. ⁴	110,108	126,500
Baltimore, Md.....	733,826	830,400
Cumberland, Md.....	29,837	35,800
Frederick, Md. ¹	11,066	12,200
Washington, D. C.....	437,571	552,000
Lynchburg, Va.....	30,070	38,600
Norfolk, Va. ⁴	115,777	184,200
Richmond, Va.....	171,667	194,400
Roanoke, Va.....	50,842	64,600
Charleston, W. Va.....	39,608	55,200
Wheeling, W. Va.....	56,208	56,208
Raleigh, N. C.....	24,418	32,200
Wilmington, N. C.....	33,372	39,100
Winston-Salem, N. C.....	48,395	80,000
Charleston, S. C.....	67,957	75,900
Columbia, S. C. ¹	37,624	50,600
Greenville, S. C. ¹	23,127	29,600
Atlanta, Ga.....	200,616	255,100
Brunswick, Ga.....	14,413	18,100
Savannah, Ga.....	83,252	99,900
Tampa, Fla. ⁴	51,608	112,400

Footnotes at end of table.

TABLE 3.—Populations of the 95 cities included in the group for which the influenza-pneumonia death rates from 1920 to 1929 are considered in this study—Contd.

Geographic section and city	Enumerated population according to the census of 1920 (Jan. 1, 1920)	Estimated population as of July 1, 1928
East North Central (16 cities)	6,552,610	8,001,271
Cincinnati, Ohio.....	401,247	413,700
Cleveland, Ohio.....	796,841	1,010,300
Columbus, Ohio.....	237,031	269,000
Fort Wayne, Ind.....	86,549	105,300
Indianapolis, Ind.....	314,194	382,100
South Bend, Ind.....	70,983	86,100
Terre Haute, Ind.....	66,083	73,500
Chicago, Ill.....	2,701,705	3,157,400
Springfield, Ill.....	58,183	67,200
Detroit, Mich.....	998,678	1,378,900
Flint, Mich.....	91,599	148,800
Grand Rapids, Mich.....	137,634	164,200
Kenosha, Wis. ¹	40,472	56,500
Milwaukee, Wis. ²	437,147	544,200
Racine, Wis. ¹	58,593	74,400
Superior, Wis. ¹	39,671	³ 39,671
East South Central (6 cities)	812,288	1,010,200
Covington, Ky.....	57,121	59,000
Louisville, Ky.....	234,891	329,400
Memphis, Tenn.....	162,351	190,200
Nashville, Tenn.....	118,342	139,600
Birmingham, Ala.....	178,806	222,400
Mobile, Ala.....	60,777	69,600
West North Central (10 cities)	2,225,244	2,553,900
Duluth, Minn.....	98,917	116,800
Minneapolis, Minn.....	380,582	455,900
St. Paul, Minn.....	234,698	252,200
Kansas City, Mo.....	324,410	391,000
St. Joseph, Mo.....	77,939	78,500
St. Louis, Mo. ¹	772,897	848,100
Fargo, N. Dak. ¹	21,961	26,400
Omaha, Nebr.....	191,601	222,800
Topeka, Kans.....	50,022	62,800
Wichita, Kans.....	72,217	90,300
West South Central (7 cities)	999,121	1,266,000
Little Rock, Ark. ¹	65,142	79,200
New Orleans, La.....	387,219	429,400
Shreveport, La. ¹	43,874	81,300
Dallas, Tex.....	158,976	217,800
Galveston, Tex.....	44,255	50,600
Houston, Tex. ¹	138,276	179,600
San Antonio, Tex. ²	161,379	218,100
Mountain (9 cities)	514,986	590,005
Billings, Mont.....	15,100	19,500
Great Falls, Mont.....	24,121	33,000
Helena, Mont. ¹	12,037	² 12,037
Missoula, Mont.....	12,668	³ 12,668
Boise, Idaho. ¹	21,393	23,400
Denver, Colo.....	256,491	294,200
Pueblo, Colo.....	43,050	44,200
Salt Lake City, Utah.....	118,110	138,000
Reno, Nev.....	12,016	13,000
Pacific (4 cities)	1,246,222	1,348,173
Tacoma, Wash.....	96,965	110,750
Los Angeles, Calif. ¹	576,673	² 576,673
Sacramento, Calif.....	65,908	75,700
San Francisco, Calif.....	506,676	585,300

NOTE.—For certain of the cities data were not available for the earlier years. The footnotes designate for each year the cities not used for that year. In addition there were occasional weeks when reports were not received from certain cities; in such cases the populations of the missing cities were deducted from the total before computing the rate for that week. Populations used in computing the rates were estimates as of July 1 of each year, made by the United States Bureau of the Census.

¹ No data 1920-1923.

² Population as of Census of 1920; no estimate made.

³ No data for 1920-1922.

⁴ No data for 1923.

⁵ No data for 1920.

⁶ No data for 1920-21.

⁷ No data for 1921-1923.

Dates of end (Saturday) of first calendar week of the year

Year	First week ended—	Year	First week ended—	Year	First week ended—
1917.....	Jan. 6	1922.....	Jan. 7	1927.....	Jan. 8
1918.....	Jan. 5	1923.....	Jan. 6	1928.....	Jan. 7
1919.....	Jan. 4	1924.....	Jan. 5	1929.....	Jan. 5
1920.....	Jan. 10	1925.....	Jan. 10	1930.....	Jan. 4
1921.....	Jan. 8	1926.....	Jan. 9		

TABLE 4.—Weekly death rates (annual basis) per 100,000 population, 1920–1929

INFLUENZA IN ABOUT 95 CITIES¹ OF THE UNITED STATES

Week of year	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
1.....	12	6	10	21	7	21	21	20	19	223
2.....	16	9	9	31	14	22	23	21	24	233
3.....	100	9	9	41	13	22	20	21	24	179
4.....	401	11	15	43	13	23	29	25	19	120
5.....	662	8	33	64	15	30	35	19	19	80
6.....	685	9	52	75	19	28	34	24	17	56
7.....	461	12	61	88	17	30	50	23	22	52
8.....	268	11	90	100	18	34	47	22	21	44
9.....	153	11	69	98	18	30	51	25	24	39
10.....	92	14	59	60	22	31	71	27	23	32
11.....	64	14	55	59	20	42	76	31	25	32
12.....	47	10	47	41	16	33	97	27	32	26
13.....	31	8	33	36	18	31	89	22	29	18
14.....	24	8	21	32	18	27	71	23	34	20
15.....	23	9	21	28	18	27	53	22	26	15
16.....	15	8	15	25	15	30	38	18	28	15
17.....	13	8	12	19	13	22	33	18	32	13
18.....	13	7	10	18	9	15	25	13	32	8
19.....	10	4	8	12	11	14	16	13	33	10
20.....	8	5	4	7	9	14	15	12	29	8
21.....	9	4	5	7	7	12	12	9	25	10
22.....	6	3	3	7	6	11	8	7	20	7
23.....	4	3	2	4	4	7	10	6	17	7
24.....	3	2	3	3	3	6	7	6	11	6
25.....	2	1	2	2	4	6	5	7	6	6
26.....	3	2	1	3	2	4	6	3	7	8
27.....	2	1	2	3	2	2	4	3	8	2
28.....	2	1	2	1	2	2	4	3	5	3
29.....	2	1	1	2	1	2	3	3	5	3
30.....	2	1	2	1	1	1	2	3	4	3
31.....	3	1		2	2	3	2	2	6	3
32.....	2	1	1	1	1	2	1	3	5	1
33.....	1	1	1	2	1	2	3	4	3	3
34.....	1	2	1	2	1	4	3	5	4	3
35.....	1	1	1	1	2	3	3	4	3	2
36.....	1	2	2	1	1	5	4	4	3	3
37.....	1	2	2	3	1	5	4	5	5	3
38.....	2	1	1	3	1	3	6	3	4	2
39.....	1	2	3	3	3	4	6	6	5	5
40.....	2	3	1	2	4	3	4	5	7	6
41.....	1	3	2	3	4	6	6	6	7	8
42.....	2	3	3	5	4	8	7	9	10	8
43.....	3	5	4	5	3	11	11	8	10	9
44.....	4	5	6	4	6	13	11	9	9	11
45.....	4	4	4	6	7	12	14	8	12	8
46.....	6	5	7	7	8	8	10	9	15	9
47.....	6	4	7	8	8	9	10	11	16	8
48.....	6	5	7	9	10	12	14	12	30	11
49.....	9	5	8	12	12	13	17	12	48	16
50.....	8	6	10	9	17	14	14	14	77	16
51.....	6	7	10	9	16	13	15	17	113	19
52.....	8	7	11	9	15	15	17	19	173	19
53.....					19					

¹ Number of cities: 1920, 74; 1921, 75; 1922, 80; 1923, 84; 1924, 97; 1925–26, 96; 1927–Mar. 23, 1929, 95; remainder of 1929, 91.

TABLE 5.—Weekly death rates (annual basis) per 100,000 population, 1920-1929

PNEUMONIA IN ABOUT 95 CITIES¹ OF THE UNITED STATES

Week of year	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
1.....	186	187	154	231	158	192	220	196	170	283
2.....	214	174	179	255	205	215	211	179	191	412
3.....	328	177	193	245	195	211	199	183	179	373
4.....	546	163	196	257	186	206	193	159	159	325
5.....	812	173	240	297	203	225	206	168	150	276
6.....	864	186	259	308	197	222	213	148	108	232
7.....	628	190	260	354	208	216	259	146	174	224
8.....	435	194	322	385	221	201	260	164	161	198
9.....	301	200	306	366	216	205	269	172	188	226
10.....	256	188	302	319	226	222	325	188	191	205
11.....	221	177	263	263	220	217	372	183	221	189
12.....	203	163	231	232	217	206	372	166	213	172
13.....	191	146	187	199	223	204	335	163	222	158
14.....	185	144	180	198	232	201	277	163	215	150
15.....	182	131	165	203	226	192	241	154	207	139
16.....	182	134	134	181	204	203	201	159	198	127
17.....	162	107	130	175	178	167	177	144	198	118
18.....	138	111	139	167	173	151	163	131	206	124
19.....	134	101	125	141	145	127	150	122	210	110
20.....	144	102	121	130	138	128	141	109	189	106
21.....	127	92	110	122	119	117	120	100	176	116
22.....	112	78	91	116	117	128	105	93	145	105
23.....	99	70	84	114	109	104	95	94	120	91
24.....	84	59	65	84	106	81	87	87	111	86
25.....	61	61	55	77	97	66	74	74	85	82
26.....	58	48	60	85	80	58	75	73	75	64
27.....	49	43	50	68	66	61	67	58	70	63
28.....	51	45	52	56	59	57	60	57	60	55
29.....	47	42	46	53	57	50	54	56	56	56
30.....	45	39	43	60	50	61	48	49	44	50
31.....	53	47	43	58	54	56	54	47	52	54
32.....	43	46	50	60	50	63	50	55	59	53
33.....	46	50	49	61	50	56	54	45	55	57
34.....	48	43	48	55	47	64	48	46	56	54
35.....	41	55	49	58	58	73	51	56	55	55
36.....	48	57	50	65	58	64	51	62	57	58
37.....	60	48	52	66	57	62	53	60	63	55
38.....	57	55	49	69	57	57	65	59	66	54
39.....	61	53	55	71	69	62	69	56	66	67
40.....	59	56	68	79	81	66	64	65	87	77
41.....	69	65	78	75	92	94	77	71	79	80
42.....	72	79	80	93	92	96	85	77	101	97
43.....	81	85	95	97	89	122	96	91	86	108
44.....	84	94	99	107	110	141	101	90	88	106
45.....	91	92	128	125	118	138	103	104	91	105
46.....	104	114	118	124	125	151	123	112	102	99
47.....	119	103	133	135	120	130	126	97	122	103
48.....	134	108	144	132	130	149	122	114	134	107
49.....	130	111	149	138	153	134	129	110	157	137
50.....	132	123	171	144	159	153	138	118	195	151
51.....	141	124	191	146	172	140	137	135	241	159
52.....	175	146	196	147	157	184	163	157	303	144
53.....					203					

¹ Number of cities: 1920, 74; 1921, 75; 1922, 80; 1923, 84; 1924, 97; 1925-26, 96; 1927-Mar. 23, 1929, 95; remainder of 1929, 91.

TABLE 6.—Weekly death rates (annual basis) per 100,000 population, 1920-1929

INFLUENZA AND PNEUMONIA IN ABOUT 95 CITIES¹ OF THE UNITED STATES

Week of year	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
1.....	198	193	164	252	165	213	241	216	189	806
2.....	229	183	188	286	219	237	234	200	215	645
3.....	428	180	202	286	208	233	219	204	203	552
4.....	947	175	210	800	199	229	222	184	178	464
5.....	1,474	181	273	360	223	255	241	187	169	350
6.....	1,549	195	311	382	216	250	247	172	185	288
7.....	1,069	202	322	441	225	246	309	169	196	376
8.....	702	205	412	465	239	235	307	186	182	241
9.....	456	212	375	465	234	235	320	197	212	266
10.....	348	203	361	399	248	256	396	215	214	237
11.....	285	192	319	322	240	250	448	214	246	220
12.....	250	173	278	273	233	239	469	193	245	199
13.....	222	155	220	235	241	238	424	185	251	176
14.....	209	152	201	231	250	228	351	186	249	170
15.....	205	141	186	231	244	219	294	176	233	154
16.....	197	142	150	206	219	233	239	177	226	142
17.....	175	115	142	195	191	189	210	162	230	131
18.....	151	118	149	185	182	166	188	144	238	132
19.....	144	106	133	154	156	141	166	135	243	120
20.....	152	107	125	138	147	142	156	121	218	114
21.....	136	96	115	128	126	129	132	109	201	123
22.....	119	81	94	123	123	139	113	100	165	112
23.....	103	72	86	118	113	111	105	100	143	98
24.....	87	61	68	87	109	87	94	93	122	92
25.....	63	62	57	79	101	72	79	81	91	88
26.....	61	50	61	88	82	62	81	76	82	69
27.....	50	45	52	71	68	63	71	61	78	65
28.....	52	46	54	58	61	59	64	60	65	58
29.....	49	43	47	58	58	52	57	59	61	59
30.....	47	40	50	61	57	62	50	52	48	53
31.....	55	48	48	59	56	59	56	49	58	57
32.....	50	48	51	61	51	65	51	58	64	54
33.....	47	51	50	62	51	57	57	49	78	60
34.....	50	44	49	58	48	68	51	51	60	57
35.....	42	56	51	59	60	76	54	60	58	57
36.....	49	59	52	67	59	69	55	66	60	61
37.....	61	50	54	59	58	67	57	65	68	56
38.....	58	57	50	72	58	60	71	62	70	56
39.....	63	55	58	74	72	66	75	62	71	72
40.....	61	59	69	80	85	69	68	70	94	83
41.....	70	68	80	79	96	160	83	77	86	88
42.....	74	82	83	98	96	104	92	86	111	105
43.....	83	90	99	101	92	133	107	99	96	117
44.....	88	99	106	111	116	154	112	99	95	117
45.....	95	96	132	131	125	150	120	112	103	113
46.....	110	119	125	131	133	159	133	121	117	108
47.....	125	107	140	143	128	139	136	108	138	111
48.....	141	113	151	141	140	161	136	126	164	118
49.....	139	116	157	150	163	147	146	122	205	153
50.....	140	129	181	153	176	167	152	132	272	167
51.....	146	131	201	155	188	183	152	152	354	178
52.....	183	153	207	157	172	189	180	176	476	163
53.....					222					

¹ Number of cities: 1920, 74; 1921, 75; 1922, 80, 1923, 84; 1924, 97; 1925-26, 96; 1927-Mar. 23, 1929, 95; remainder of 1929, 91.

TABLE 7.—*Excess¹ weekly death rates (annual basis) per 100,000 from influenza and pneumonia, 1920-1929*TOTAL, ABOUT 95 CITIES² IN THE UNITED STATES

Week of year	Median 1921-1927 (smoothed) ¹	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
1.....	194	+4	-1	-30	+58	-29	+19	+47	+22	-5	+412
2.....	206	+24	-22	-17	+81	+14	+32	+29	-5	+10	+440
3.....	218	+210	-32	-16	+68	-10	+15	+1	-14	-15	+334
4.....	225	+722	-50	-15	+75	-26	+4	-3	-41	-47	+239
5.....	230	+1,244	-49	+43	+130	-7	+25	+11	-43	-61	+126
6.....	237	+1,812	-42	+74	+145	-21	+13	+10	-65	-52	+51
7.....	242	+847	-40	+80	+199	-17	+4	+67	-73	-46	+34
8.....	245	+457	-40	+167	+220	-6	-10	+62	-59	-63	-4
9.....	247	+209	-35	+128	+218	-13	-12	+73	-50	-35	+19
10.....	246	+102	-43	+115	+153	+2	+10	+150	-31	-32	-9
11.....	245	+40	-53	+74	+77	-5	+14	+203	-31	+1	-25
12.....	243	+7	-70	+35	+30	-10	-4	+226	-50	+2	-44
13.....	236	-14	-81	-16	-1	+5	+2	+185	-51	+15	-60
14.....	225	-16	-73	-24	+6	+25	+3	+126	-39	+24	-55
15.....	215	-10	-74	-29	+16	+29	+4	+79	-39	+13	-61
16.....	202	-5	-60	-52	+4	+17	+31	+37	-25	+24	-60
17.....	184	-9	-69	-42	+11	+7	+5	+26	-22	+46	-52
18.....	168	-17	-50	-19	+17	+14	-2	+20	-24	+70	-36
19.....	152	-8	-46	-19	+2	+4	-11	+14	-17	+91	-32
20.....	137	+15	-30	-12	+1	+10	+5	+19	-16	+81	-23
21.....	125	+11	-29	-10	+3	+1	+4	+7	-16	+76	+1
22.....	114	+5	-33	-20	+9	+9	+25	-1	-14	+51	-2
23.....	102	+1	-30	-16	+16	+11	+9	+3	-2	+41	-4
24.....	92	-5	-31	-24	-5	+17	-5	+2	+1	+30	0
25.....	82	-19	-20	-25	-3	+19	-10	-3	-1	+9	+6
26.....	73	-12	-23	-12	+15	+9	-11	+8	+3	+9	-4
27.....	67	-17	-22	-15	+4	+1	-4	+4	-6	+11	-2
28.....	61	-9	-15	-7	-3	0	-2	+3	-1	+4	-3
29.....	57	-8	-14	-10	+1	+1	-5	0	+2	+4	+2
30.....	55	-8	-15	-5	+0	+2	+7	-5	-3	-7	-2
31.....	53	+2	-5	-5	+6	+3	+6	+3	-4	+5	+4
32.....	52	-2	-4	-1	+9	-1	+13	-1	+6	+12	+2
33.....	54	-7	-3	-4	+8	-3	+3	+3	-5	+4	+6
34.....	54	-4	-10	-5	+4	-6	+14	-3	-3	+0	+3
35.....	56	-14	0	-5	+3	+4	+20	-2	+4	+2	+1
36.....	57	-8	+2	-5	+10	+2	+12	-2	+9	+3	+4
37.....	60	+1	-10	-6	-1	-2	+7	-3	+5	+8	-2
38.....	62	-4	-5	-12	+10	-4	-2	+9	0	+8	-6
39.....	67	-4	-12	-9	+7	+5	-1	+8	-5	+4	+5
40.....	73	-12	-14	-4	+7	+12	-4	-5	-3	+21	+10
41.....	81	-11	-13	-1	-2	+15	+19	+2	-4	+5	+7
42.....	90	-16	-8	-7	+8	+6	+14	+2	-4	+21	+15
43.....	101	-18	-11	-2	0	-9	+32	+6	-2	-5	+16
44.....	112	-24	-13	-6	-1	+4	+42	0	-13	-17	+5
45.....	120	-25	-24	+12	+11	+5	+30	0	-8	-17	-7
46.....	129	-19	-10	-4	+2	+4	+30	+4	-8	-12	-21
47.....	136	-11	-29	+4	+7	-8	+3	0	-28	+2	-25
48.....	142	-1	-29	+9	-1	-2	+19	-6	-16	+22	-24
49.....	146	-7	-30	+11	+4	+19	+1	0	-24	+59	+7
50.....	154	-14	-25	+27	-1	+22	+13	-2	-22	+118	+13
51.....	169	-23	-38	+32	-14	+19	-16	-17	-17	+185	+9
52.....	183	0	-30	+24	-26	-11	+16	-3	-7	+293	-20

¹ Excess over or deviation from the median death rate for the corresponding week for the period 1921-1927. The series of 52 medians representing "normal" or "expected" rates for the different weeks of the year were smoothed by a 5-period moving average before deviations were computed. The smoothed medians are the values in the first column of the table.

² Number of cities: 1920, 74; 1921, 75; 1922, 80; 1923, 84; 1924, 97; 1925-26, 96; 1927-Mar. 23, 1929, 95; remainder of 1929, 91.

TABLE 8.—*Excess¹ weekly death rates (annual basis) per 100,000 from influenza and pneumonia, 1920-1929*ABOUT 12 CITIES² IN THE NEW ENGLAND STATES

Week of year	Median 1921-1927 (smoothed) ¹	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
1.....	184	-9	+53	-38	+87	-45	-45	+71	+13	-65	+65
2.....	190	+13	-40	-62	+103	+31	-6	+32	+14	-4	+233
3.....	202	+53	+45	+2	+149	-3	+24	+15	+10	-28	+380
4.....	201	+265	-20	-15	+117	-59	+67	-40	-34	-68	+507
5.....	201	+689	-61	+48	+207	-13	+57	+12	-8	-66	+453
6.....	203	+1,366	-40	+33	+108	-15	+63	-28	-36	-47	+274
7.....	210	+1,255	-7	+150	+193	-2	+48	-33	-99	-20	+152
8.....	216	+707	-28	+340	+179	-10	+66	-32	-21	-62	+67
9.....	226	+412	-28	+345	+164	-10	+17	-27	-15	-30	+68
10.....	235	+189	-27	+172	+185	-47	+29	+6	-35	-9	0
11.....	232	+25	-24	+150	+141	+4	+9	+170	-41	+13	-6
12.....	231	+24	-29	+66	+45	-53	+18	+208	-68	-40	-38
13.....	218	+11	-68	-4	-2	-67	+68	+359	-50	+18	-41
14.....	203	+16	-28	+11	+6	-2	+40	+239	-57	-8	-90
15.....	186	+17	-16	-18	-7	-3	+47	+169	-14	+21	-52
16.....	179	+29	-14	-41	+8	-20	+37	+95	-16	-6	-55
17.....	165	+43	-23	-34	-3	-1	+4	+80	+25	-13	-13
18.....	154	-38	-10	+27	+25	+22	+17	+30	-10	+56	-46
19.....	142	-6	-20	+16	-15	0	-1	+28	-16	+131	-50
20.....	126	+39	-42	+25	-12	+5	-2	+30	-12	+122	-36
21.....	109	+48	-5	-26	-12	-15	+12	+23	+44	+162	+20
22.....	97	+47	-18	-4	-45	-11	-23	+21	+21	+91	+16
23.....	86	+27	-7	+5	+1	+8	+36	+28	+2	+96	-18
24.....	78	+4	+3	-33	-6	+38	-14	+18	+31	+72	+15
25.....	71	+16	+13	-21	+4	-1	-4	-2	+20	+24	-15
26.....	63	-12	+1	-23	+2	-6	-16	+34	+2	+9	-2
27.....	55	-9	-19	-7	-15	-6	-10	+6	+6	+5	-5
28.....	52	+2	-16	+18	-12	-12	-2	+5	+9	+20	-21
29.....	48	+16	-10	-3	+17	-13	+4	-13	+8	+16	+22
30.....	47	-1	-9	+6	+5	-5	+8	-14	+4	-8	-13
31.....	46	+11	-3	+4	+11	+1	-4	+8	-13	+13	-3
32.....	45	+4	+6	+10	-3	-10	-15	-14	+34	+3	-7
33.....	45	-1	-2	+8	-8	+10	-5	-5	+6	-6	+7
34.....	43	-4	0	+12	-6	-13	-1	-10	+10	+3	-16
35.....	43	-10	0	+12	-1	+6	+12	+7	+8	-11	+7
36.....	46	+8	-13	+9	-21	-11	+8	-6	+24	+2	-2
37.....	50	+37	-7	-17	-8	-10	+20	+4	-11	+12	-14
38.....	54	+18	+4	+9	-27	-22	+1	+27	+16	+24	-23
39.....	62	-3	-1	-7	-2	-10	-30	+27	-4	+3	+12
40.....	70	+5	-6	0	+2	+2	-10	-37	+16	-12	-20
41.....	78	-1	-2	-15	-16	+21	+19	+3	+19	-4	-3
42.....	88	+15	-7	-3	-11	-16	+1	+2	+3	+40	+11
43.....	92	-17	+7	+4	-5	-21	+32	+14	-27	-13	-29
44.....	100	+3	-21	-7	+17	+6	+44	+11	-32	-8	-23
45.....	109	-11	-38	+34	-42	-15	+35	-17	-12	-24	+16
46.....	117	-1	+13	+4	+15	-30	+29	-11	-10	-51	-20
47.....	124	+28	+6	+37	-27	-25	+49	+17	-62	-9	-31
48.....	134	+41	-2	+62	-2	+15	+62	-9	-29	-32	-36
49.....	139	+49	-35	+20	+3	+5	+8	+5	-79	-46	-53
50.....	144	-3	-2	+15	-5	-30	+35	+12	-30	-27	-6
51.....	157	-26	-25	+32	-25	-8	+26	+1	-31	+16	+10
52.....	169	+47	-19	+32	-37	-40	+53	+25	-18	+4	-63

¹ Excess over or deviation from the median death rate for the corresponding week for the period 1921-1927. The series of 52 medians representing "normal" or "expected" rates for the different weeks of the year were smoothed by a 5-period moving average before deviations were computed. The smoothed medians are the values in the first column of the table.

² Number of cities: 1920-1923, 11; 1924-1929, 12.

TABLE 9.—*Excess¹ weekly death rates (annual basis) per 100,000 from influenza and pneumonia, 1920-1929*ABOUT 10 CITIES² IN THE MIDDLE ATLANTIC STATES

Week of year	Median 1921-1927 (smoothed) ¹	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
1.....	212	-26	-8	-30	+36	-39	+36	+35	+15	-13	+348
2.....	228	-9	-31	+15	+27	+11	+50	+24	-3	+7	+376
3.....	239	+163	-48	+6	+30	-9	+15	+2	-22	-27	+359
4.....	240	+702	-42	+20	+37	-26	+6	-5	-44	-41	+348
5.....	238	+1,279	-36	+134	+108	+11	+39	-5	-20	-95	+204
6.....	240	+1,381	-32	+198	+123	-10	+13	-13	-38	-25	+116
7.....	244	+852	-31	+192	+239	-23	-7	+72	-70	-31	+54
8.....	251	+365	-6	+207	+241	0	-46	+104	-52	-72	-24
9.....	257	+156	-6	+95	+252	-3	-32	+168	-40	-24	+13
10.....	262	+68	-40	+52	+146	+22	-24	+303	-14	-22	-4
11.....	259	-2	-36	+24	+60	-4	-13	+339	-1	+25	-31
12.....	253	-9	-50	+13	+23	+11	-32	+351	-28	+14	-40
13.....	241	-5	-52	-2	-13	+48	-5	+291	-34	+52	-49
14.....	233	-19	-76	-12	-10	+42	-27	+181	-8	+42	-39
15.....	218	+22	-51	-6	+6	+50	+10	+129	-21	+109	-43
16.....	208	+1	-54	-33	-19	+48	+32	+66	+11	+60	-63
17.....	196	-1	-65	-47	-13	+37	+24	+50	-6	+84	-54
18.....	182	-18	-62	-9	-13	+27	+13	+14	0	+110	-40
19.....	166	-7	-65	+8	-26	+18	-11	+16	-1	+132	-35
20.....	153	-6	-33	+5	-19	+34	+2	+36	-24	+93	-31
21.....	140	0	-43	-3	-15	+9	+15	+16	-16	+92	-3
22.....	126	-1	-34	-19	-1	+14	+53	+10	-9	+80	-9
23.....	112	-18	-34	-10	+16	+31	+24	+6	+5	+54	-2
24.....	99	+5	-38	-21	-13	+31	-2	+5	+1	+44	+3
25.....	87	-27	-19	-26	-5	+25	-6	+2	+4	+32	+5
26.....	76	-8	-18	-21	+12	+27	-12	+21	-3	+19	-7
27.....	68	-20	-15	-16	-6	+18	-2	+6	0	+31	+2
28.....	63	0	-13	-12	-8	+11	+2	+15	0	+12	+1
29.....	60	-6	-26	-8	-9	+5	-5	+6	+3	+4	+7
30.....	59	-13	-19	-11	+1	+5	+7	-17	+1	-4	0
31.....	58	+2	-4	-13	0	+11	+9	0	-11	+8	+5
32.....	59	-3	+1	-7	+1	+4	+16	+4	0	+18	+2
33.....	61	-4	-13	-9	+5	-1	+6	-2	-12	+5	+12
34.....	63	-4	-19	-5	+3	-10	+5	-4	-6	+8	0
35.....	63	-21	+5	-7	-3	+8	+24	-2	+12	0	0
36.....	65	-15	-3	-18	+6	+14	+6	+4	+5	-7	+12
37.....	68	-8	-24	-16	-7	-6	0	-14	-4	+5	0
38.....	70	-5	-18	-20	+3	-6	-1	+3	+2	+9	-11
39.....	73	-2	-13	-12	-2	+7	-2	0	-7	+4	+4
40.....	82	-23	-24	-7	+2	+13	-15	-3	-5	+31	+18
41.....	90	-16	-29	-11	-5	+27	+9	+2	-10	+8	+5
42.....	98	-9	-22	-17	+10	+20	+14	+14	-16	+33	+26
43.....	111	-18	-16	-26	-4	+9	+36	-2	-15	-11	+45
44.....	121	-34	-22	-18	-10	+27	+46	+1	-26	-33	+1
45.....	129	-34	-40	+21	+13	+37	+29	-5	-7	-12	-6
46.....	136	-26	-17	-2	+2	+22	+30	+9	-10	-3	-29
47.....	144	-28	-39	+16	-13	+17	+9	+1	-36	-1	-27
48.....	147	+4	-38	-1	-10	+13	+24	+16	-13	+4	-41
49.....	151	-26	-43	+7	0	+48	-7	0	-25	+15	+2
50.....	160	-11	-40	+24	-3	+63	-4	0	-34	+57	+5
51.....	176	-32	-31	+21	-24	+32	-21	+4	-38	+136	+7
52.....	195	-7	-41	+6	-20	-3	+1	+5	-23	+227	-27

¹ Excess over or deviation from the median death rate for the corresponding week for the period 1921-1927. The series of 52 medians representing "normal" or "expected" rates for the different weeks of the year were smoothed by a 5-period moving average before deviations were computed. The smoothed medians are the values in the first column of the table.

² Number of cities: 1920-1922, 7; 1923, 9; 1924-1929, 10.

TABLE 10.—*Excess¹ weekly death rates (annual basis) per 100,000 from influenza and pneumonia, 1920-1929*ABOUT 21 CITIES² IN THE SOUTH ATLANTIC STATES

Week of year	Median 1921-1927 (smoothed) ¹	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
1.....	262	-36	-8	-17	+137	-53	+19	+42	-11	-10	+408
2.....	270	+12	-75	-53	+213	+80	+71	+29	-53	+19	+584
3.....	279	+100	-34	-55	+114	-9	+19	+47	+24	-22	+480
4.....	287	+603	-52	-57	+216	-13	+4	+33	-44	-06	+282
5.....	289	+750	-110	-24	+249	-29	+75	+123	-35	-68	+76
6.....	300	+1,256	0	-59	+262	0	+25	+170	-105	-46	+25
7.....	313	+1,270	-52	-63	+221	+19	-6	+316	-43	-62	-24
8.....	336	+601	-64	+6	+156	+31	+18	+215	-37	-80	-18
9.....	344	+275	-78	-4	+167	+19	-23	+43	-62	-95	-38
10.....	350	+58	-54	+50	+167	+40	-71	+26	0	-111	-70
11.....	332	-26	-55	-16	+63	+9	+11	+68	+1	-99	-94
12.....	316	-22	-103	+41	+43	+23	-52	+96	-38	-37	-107
13.....	290	-76	-146	+67	-5	-45	-28	+57	-29	-39	-109
14.....	268	-45	-105	-18	0	-8	-4	+25	-68	-70	-107
15.....	242	-53	-82	+5	+56	-7	+2	+8	-15	-24	-60
16.....	225	-36	-90	-122	+49	+27	+9	+10	-23	-28	-58
17.....	203	-52	-91	-91	+37	+40	+18	+2	-18	-1	-63
18.....	185	-32	-38	-49	+22	+22	-5	+3	-54	+20	-65
19.....	163	-39	-42	-58	+34	+40	-17	+36	-14	-65	-37
20.....	147	-35	-32	-37	+54	+88	-7	+12	+9	+15	-20
21.....	135	+33	-11	-30	+3	+7	+34	-13	-36	-5	-35
22.....	122	+4	-23	-55	+27	+10	+30	-34	+5	+25	-4
23.....	110	+19	+7	-17	+43	+30	+16	-8	-36	+29	-36
24.....	102	-17	-17	-48	+2	+4	-19	+13	-32	-15	-12
25.....	90	-12	-26	-41	+9	+22	+8	+10	-42	+10	0
26.....	79	+1	-19	-17	+26	+31	+2	+17	-16	-2	-13
27.....	74	-1	-37	-16	+30	+11	-7	-3	-13	-13	-3
28.....	68	+2	-18	-6	-1	+15	-13	-8	+1	-12	-6
29.....	64	-6	0	-8	+7	+13	-5	-2	+13	-6	-4
30.....	63	+7	-10	+14	+21	+10	+2	-10	-17	+9	+1
31.....	64	+6	-4	-2	-1	+11	+15	+8	-5	-1	-15
32.....	64	-13	-4	-2	+20	-1	+14	-8	+12	+1	-21
33.....	63	-29	+15	0	+15	+2	+1	+25	-4	-5	-1
34.....	63	-29	-1	-20	+23	+20	+24	-3	-15	+6	+12
35.....	66	-36	-8	-27	+3	+5	-9	-4	-19	+8	-10
36.....	70	+13	+12	-2	+51	-3	-6	-20	-14	+9	-2
37.....	73	-7	+11	+2	+20	+4	+15	-13	+13	-1	-19
38.....	75	+3	-18	-32	+24	+2	+19	+13	+2	+15	-7
39.....	81	+6	-46	-13	+8	+10	+10	-6	-11	+3	-15
40.....	85	+21	-16	-15	+17	+23	-7	-19	-24	+15	-17
41.....	94	+6	+3	-4	-12	+10	+37	+2	+21	+1	+20
42.....	106	-36	-4	-9	+9	-2	+20	+15	-23	+9	-16
43.....	121	-31	-13	+1	0	+15	+19	+7	-20	0	-5
44.....	137	-33	-15	-24	+12	+46	+88	-2	-12	-33	-2
45.....	147	-16	-1	-20	-2	+11	+17	+9	-10	-66	-6
46.....	159	-25	-13	+22	+29	+18	+11	-8	+21	-21	-41
47.....	171	-18	-32	-15	+36	-43	-17	+9	-11	+2	-73
48.....	178	-44	-19	+41	+23	+5	+10	-52	-16	-12	-82
49.....	190	+16	-42	+18	+17	+12	+3	-2	-35	+26	-38
50.....	202	-68	-21	+40	-21	-5	+21	-50	-26	+130	+4
51.....	217	-11	-73	+77	+18	+53	+20	-31	-15	+142	-20
52.....	239	-33	-2	+68	-62	-20	+41	-36	-29	+356	-61

¹ Excess over or deviation from the median death rate for the corresponding week for the period 1921-1927. The series of 52 medians representing "normal" or "expected" rates for the different weeks of the year were smoothed by a 5-period moving average before deviations were computed. The smoothed medians are the values in the first column of the table.

² Number of cities: 1920-21, 16; 1922-23, 19; 1924-25, 22; 1926, 21; 1927, 20; 1928-Mar. 23, 1929, 21; remainder of 1929, 19.

TABLE 11.—*Excess*¹ weekly death rates (annual basis) per 100,000 from influenza and pneumonia, 1920-1929ABOUT 16 CITIES² IN THE EAST NORTH CENTRAL STATES

Week of year	Median 1921-1927 (smoothed) ¹	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
1.....	151	+47	-8	-55	+94	-11	+17	+37	+36	-1	+558
2.....	158	+69	-4	-50	+116	+6	+9	+6	+10	+13	+488
3.....	164	+388	-2	-32	+88	-6	-4	-17	-1	-10	+264
4.....	166	+1,166	+15	-21	+97	-18	-9	-18	-13	-33	+88
5.....	171	+1,697	+13	-1	+161	+7	+6	-14	-40	-29	+47
6.....	178	+1,255	-15	+21	+222	-4	+7	-6	-28	-54	-18
7.....	191	+589	-40	+1	+221	+8	+11	0	-52	-42	+31
8.....	211	+307	-61	+68	+250	-30	-16	-18	-48	-41	-8
9.....	230	+97	-68	+46	+194	-46	-8	-10	-73	-65	+19
10.....	236	+54	-93	+64	+108	-58	+38	+85	-61	-64	-46
11.....	237	+35	-112	+30	+37	-42	+34	+183	-77	-31	-59
12.....	237	-6	-101	-9	-13	-59	+17	+218	-90	+9	-76
13.....	224	-32	-109	-78	-15	-27	-4	+207	-62	+7	-76
14.....	206	+7	-92	-32	+21	+21	+11	+120	-65	+75	-54
15.....	194	-13	-103	-50	+44	+16	+20	+105	-41	+95	-53
16.....	182	+24	-60	-40	+31	0	+62	+51	-36	+38	-49
17.....	162	-3	-76	0	+38	-27	+9	+36	-21	+88	-57
18.....	144	+11	-47	-36	+62	+9	-4	+63	-15	+103	-14
19.....	129	+13	-35	-38	+36	-11	+7	+36	-21	+146	-21
20.....	117	+64	-21	-26	+30	-10	+20	+34	-1	+141	+5
21.....	109	+22	-26	-9	+42	0	+24	+8	-20	+99	+17
22.....	101	+8	-41	-24	+33	+3	+23	+5	-18	+50	+9
23.....	91	+13	-46	-34	+30	-2	+5	+6	+6	+41	+11
24.....	83	-12	-31	-23	+14	-2	+5	-6	+8	+42	+7
25.....	72	-20	-27	-30	-7	+25	-24	-8	+4	-6	+12
26.....	62	-12	-30	+8	+23	+7	-12	+1	+21	+6	+11
27.....	57	-9	-20	-12	+23	-8	+6	+17	-3	+15	+2
28.....	51	-16	-11	-11	+2	-9	-1	-1	-5	+7	+2
29.....	45	-3	0	-12	+11	-5	-4	+5	+12	+17	-2
30.....	43	-1	-10	-7	+9	0	+9	+6	0	-8	-1
31.....	41	+4	-6	-5	+15	-4	0	+2	+3	-7	+10
32.....	40	-8	-12	-3	+12	-1	+14	-5	+3	-6	+4
33.....	40	-10	-5	-1	+23	-3	+4	-3	-3	+6	-3
34.....	42	+5	-4	-15	-4	-5	+16	-1	-5	+2	+9
35.....	43	-5	-15	-4	+12	0	+24	-5	+14	+10	+10
36.....	45	-10	+8	-7	+14	-6	+11	-4	+18	+17	+5
37.....	49	-1	-13	+1	-4	-8	+2	-6	+6	+20	0
38.....	52	-8	-4	-5	+18	-2	-5	-4	-7	+11	-3
39.....	54	-3	-3	-6	+19	+9	0	+10	-8	0	+4
40.....	59	-13	-8	-1	+13	+11	+9	-3	0	+22	+7
41.....	67	-14	-8	+7	+7	-2	+35	-2	-15	+7	+6
42.....	74	-33	-9	-2	+2	-5	+18	-9	-3	+20	+16
43.....	82	-11	-9	+14	-8	-21	+44	+18	+5	+2	+19
44.....	88	-24	-4	+3	+1	-15	+49	+2	+14	+1	+22
45.....	95	-10	-15	+4	+12	-11	+52	0	-1	-9	-9
46.....	100	-6	-17	-5	-2	-11	+52	+16	-2	-8	-20
47.....	104	+12	-22	+5	+18	-9	+1	+1	-10	+5	-2
48.....	112	-4	-28	+10	+3	-8	+44	-16	0	+22	-19
49.....	116	+3	-12	-4	-6	+8	+17	+1	-10	+37	+19
50.....	124	-5	-12	+19	-13	+14	+33	+7	-16	+91	+6
51.....	135	-16	-61	+35	-21	+20	-21	-14	-17	+214	-4
52.....	145	-21	-31	+35	-27	-3	+5	+4	0	+146	-16

¹ Excess over or deviation from the median death rate for the corresponding week for the period 1921-1927. The series of 52 medians representing "normal" or "expected" rates for the different weeks of the year were smoothed by a 5-period moving average before deviations were computed. The smoothed medians are the values in the first column of the table.

² Number of cities: 1920, 13; 1921, 14; 1922-23, 15; 1924, 17; 1925-1929, 16.

TABLE 12.—*Excess¹ weekly death rates (annual basis) per 100,000 from influenza and pneumonia, 1920-1929*ABOUT 6 CITIES² IN THE EAST SOUTH CENTRAL STATES

Week of year	Median 1921-1927 (smoothed) ¹	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
1.....	259	+52	-104	-98	+61	-42	+79	+156	-9	+65	+957
2.....	267	+12	-43	+54	+240	+13	-32	+106	-32	+36	+1,504
3.....	290	+15	-147	+19	+269	-95	+93	-5	-30	+66	+1,007
4.....	308	+111	-184	-118	+286	-5	+69	-27	-73	-36	+701
5.....	330	+318	-121	-68	+287	+65	+65	+23	-75	-131	+164
6.....	361	+788	-162	-22	+58	+73	+22	-76	-213	-84	+2
7.....	379	+1,221	-123	-40	+256	+27	+15	+78	-170	-138	-36
8.....	391	+1,279	-143	+67	+116	+50	+27	+45	-233	-140	-139
9.....	397	+784	-141	+55	+75	-26	-25	+173	-117	-23	+62
10.....	389	+424	-157	-62	+25	+46	+68	+197	-135	-22	-61
11.....	365	+149	-171	-8	+2	+40	+41	+258	-95	+39	-72
12.....	360	+65	-190	-51	+71	+86	-5	+371	-80	-31	-103
13.....	334	-10	-179	-114	+120	-19	+4	+123	-105	+32	-75
14.....	334	-29	-187	-126	+15	+89	+83	+336	-54	+136	-119
15.....	312	-58	-173	-110	+102	+25	-26	+67	-93	-102	-119
16.....	291	-81	-175	-142	+105	+98	+81	+72	-82	+12	-121
17.....	259	-81	-112	-140	+90	+27	-14	+73	-96	+22	-183
18.....	231	-123	-99	-88	+54	+38	-20	+91	-47	+67	-31
19.....	198	+24	-51	-31	+47	-9	+48	+15	-45	+68	-13
20.....	181	-54	-49	-38	+17	-32	+42	+26	-33	+122	-62
21.....	163	-61	-55	-56	-23	+37	+49	+34	-77	+156	-15
22.....	148	-40	-78	-53	+85	+87	+32	+13	-92	+82	-37
23.....	142	-21	-41	-23	+9	-28	-62	+19	-20	+67	-61
24.....	122	-33	-6	+9	-17	+9	+15	-7	-46	+26	-11
25.....	110	-59	+2	+9	+12	-24	+27	+20	-29	-27	+23
26.....	101	-18	-57	-30	+27	-4	+7	+20	-4	+46	-12
27.....	91	-21	-47	-26	+31	-5	+17	+44	+6	-2	-2
28.....	80	-48	-55	-3	+19	-12	-6	+50	-9	+3	-43
29.....	76	-32	-14	+37	-18	-7	-7	+28	-15	-24	-24
30.....	69	-18	-19	-21	-5	+17	+5	-2	-13	+52	-17
31.....	69	+1	+6	+2	+7	+6	+6	-17	-13	+12	+42
32.....	68	+40	-49	-8	+37	-11	+1	-6	+3	+52	-9
33.....	69	+7	+12	-45	+7	-12	+22	-33	+7	+46	+42
34.....	63	-16	-11	-49	-3	-44	+2	-26	+8	+11	-36
35.....	77	-37	-27	-23	+28	-2	+66	-9	-26	+33	-25
36.....	77	-45	-21	+6	+22	+20	+83	-35	+45	+17	+4
37.....	85	+10	-10	-20	-3	+1	+7	-28	+17	-32	+11
38.....	89	-33	-27	-12	+74	-38	-43	+0	+3	-32	-15
39.....	87	-8	-19	+8	+12	+10	+39	+32	+25	+38	+31
40.....	98	-42	-30	-27	+7	+34	+22	-10	-6	+12	-68
41.....	112	-25	-50	-17	-19	-26	+8	-44	-56	+3	-31
42.....	125	+42	+30	-18	+50	-10	+13	-16	+27	-22	-7
43.....	145	-69	+4	-8	+65	-71	-2	0	+8	-9	+10
44.....	165	-32	+15	+55	-2	-39	+41	-45	-38	-13	+20
45.....	172	-32	-17	+48	+55	-29	+34	+20	-19	0	-46
46.....	186	+5	-12	-13	0	+100	+100	+16	-18	-8	+66
47.....	196	-25	-47	-47	+43	+21	+27	-50	-23	-44	+86
48.....	199	-53	-112	+21	+17	+76	-10	-22	+40	-16	+38
49.....	210	-32	-30	-49	+29	+29	+41	+5	-6	+130	+86
50.....	223	+18	-86	-56	+51	+17	+68	-88	-19	+81	+51
51.....	230	-46	-6	+14	+32	+90	-42	-85	+20	+58	+37
52.....	243	-72	-63	-5	-74	+14	+47	-25	-4	+196	-20

¹ Excess over or deviation from the median death rate for the corresponding week for the period 1921-1927. The series of 52 medians representing "normal" or "expected" rates for the different weeks of the year were smoothed by a 5-period moving average before deviations were computed. The smoothed medians are the values in the first column of the table.

² Number of cities: 1920-1923, 6; 1924-1927, 7; 1928-Mar. 23, 1929, 6; remainder of 1929, 5.

TABLE 13.—*Excess¹ weekly death rates (annual basis) per 100,000 from influenza and pneumonia, 1920-1929*ABOUT 10 CITIES² IN THE WEST NORTH CENTRAL STATES

Week of year	Median 1921-1927 (smoothed) ¹	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
1.....	144	+8	+72	+44	+61	-15	-41	+4	-13	-16	+308
2.....	155	+62	+47	+30	+105	+1	-46	-11	-29	-29	+321
3.....	160	+414	+24	+73	+76	+22	-20	-69	-40	-5	+209
4.....	159	+908	+33	+95	+74	+7	-26	-38	-28	-51	+119
5.....	158	+1,680	-27	+159	+123	-7	-4	-12	-11	-99	+100
6.....	162	+1,723	+1	+144	+187	-48	-20	-81	-51	-52	+62
7.....	181	+800	+80	+142	+253	-34	-8	-17	-47	-61	+73
8.....	170	+415	+39	+279	+388	-52	+33	-41	-69	-97	+80
9.....	184	+109	-28	+279	+415	-73	-9	-83	-63	-68	+92
10.....	193	+56	+2	+228	+307	-55	+15	-12	-97	-84	+11
11.....	187	+113	+29	+262	+217	-51	+28	-12	-52	-32	+47
12.....	197	+9	-45	+75	+56	-72	+15	0	-80	-63	+47
13.....	191	+4	-21	-20	+59	-24	+41	+6	-94	-40	-23
14.....	179	-16	+9	+30	+30	-20	+86	+36	-25	-41	-5
15.....	164	+13	-4	0	+35	+16	+57	-10	-23	+35	-44
16.....	154	+37	-2	-1	+65	-5	+30	+13	-8	+42	-28
17.....	132	+27	-8	+49	+101	-16	-29	-9	-64	-11	-9
18.....	120	+68	-3	+82	+55	+3	-32	+14	-43	+61	+24
19.....	109	+43	-3	+13	+21	-10	-40	-22	-34	+54	-1
20.....	97	+84	+6	+35	+19	+2	0	+5	-31	+9	-22
21.....	86	+62	-15	+32	+34	+4	-9	+10	+13	+10	+52
22.....	76	+32	-12	+42	+37	+14	-15	-18	-12	-3	+47
23.....	67	+56	+4	+27	+1	-15	+1	-5	-13	+11	+17
24.....	57	+48	-25	-15	-6	+35	-17	+22	-7	+33	+6
25.....	55	+17	+16	+4	0	+21	-1	-5	+7	-12	-1
26.....	51	-29	-5	+5	+17	-27	-9	-5	+28	+4	-3
27.....	49	+2	-17	+21	+6	-16	-10	+4	+5	-4	+14
28.....	44	-11	-5	+26	+4	+4	+11	-8	-11	-14	+7
29.....	44	-15	-5	-16	+7	-5	+2	-2	-21	-16	-5
30.....	42	-2	-10	-4	-15	-12	0	+15	-25	-20	+12
31.....	41	+10	-16	+39	+3	-6	+12	+10	+5	+4	-15
32.....	43	+18	+14	+2	+25	-23	+1	-16	+7	+14	+8
33.....	45	+10	+5	-3	+20	-8	-14	+6	-20	-14	-9
34.....	44	+3	-9	+12	+14	-16	+11	+6	-11	-9	+4
35.....	46	+30	+21	+6	+12	-7	-11	-6	-19	-13	-13
36.....	50	-3	+28	+16	-6	-30	-13	-20	-6	-26	+7
37.....	50	+15	+39	+16	+12	0	+3	+5	0	+3	+1
38.....	52	-27	+40	+7	+10	-2	-20	+11	-27	-9	-7
39.....	57	-10	-4	+2	+11	-16	-13	+13	-16	-14	+27
40.....	61	-25	-18	+26	+1	-24	-11	+8	-15	+30	+53
41.....	69	-26	+37	+35	+13	-14	-1	-5	-7	-24	-12
42.....	77	-5	+12	+7	+26	-23	-7	-26	-1	-18	+1
43.....	86	-7	+10	+22	+10	-42	+24	-21	-11	-37	-11
44.....	94	+14	+66	+24	+12	-33	+1	-4	-22	-19	+47
45.....	97	+4	+27	+4	+78	-34	-1	-8	-20	-30	+14
46.....	94	-15	+51	+10	+57	-24	+11	+32	-3	-15	+29
47.....	96	+30	+7	+12	+68	-17	-11	-20	-3	-21	+12
48.....	105	+83	+26	+55	+70	-24	-43	-27	-30	-7	+42
49.....	106	+13	-14	+58	+58	-39	-14	+27	0	+63	+46
50.....	112	+29	+40	+69	+73	-20	+28	+23	-15	+216	+79
51.....	126	-18	+2	+121	+25	-49	-18	-24	-18	+316	+69
52.....	136	+113	-12	+150	+42	-37	-4	-10	-20	+275	+53

¹ Excess over or deviation from the median death rate for the corresponding week for the period 1921-1927. The series of 52 medians representing "normal" or "expected" rates for the different weeks of the year were smoothed by a 5-period moving average before deviations were computed. The smoothed medians are the values in the first column of the table.

² Number of cities: 1920-1923, 8; 1924-1926, 11; 1927-Mar. 23, 1929, 10; remainder of 1929, 9.

TABLE 14.—*Excess¹ weekly death rates (annual basis) per 100,000 from influenza and pneumonia, 1920-1929*ABOUT 7 CITIES² IN THE WEST SOUTH CENTRAL STATES

Week of year	Median 1921-1927 (smoothed) ¹	1920	1921 ²	1922	1923	1924	1925	1926	1927	1928	1929
1.....	210	+70	+5	-20	-76	-52	+91	+172	+74	+110	+1,038
2.....	227	+52	-31	-60	-39	+12	+299	+197	-13	+116	+758
3.....	265	+103	-50	-63	+3	-15	+189	+141	-20	+106	+466
4.....	283	+365	-223	-100	+17	+54	+28	+312	-8	+62	+232
5.....	310	+750	-164	-174	+27	+67	+139	+267	-94	-56	+63
6.....	340	+1,017	-134	-68	+8	-34	+246	+515	-155	-83	-35
7.....	352	+848	-120	-141	-41	+5	+209	+499	-106	-17	+25
8.....	357	+440	-168	-133	+45	+46	+51	+248	-167	-12	+41
9.....	362	+347	-190	-2	+125	-6	+10	+157	-138	+4	-58
10.....	350	+368	-84	+166	+52	+27	-65	+9	-144	-23	+7
11.....	314	+299	-202	+53	+18	+38	-60	+121	-102	+64	+31
12.....	285	+65	-216	+156	+52	+41	-61	+13	-143	-88	-127
13.....	255	+104	-152	-11	-35	+107	-51	+52	-66	+73	-68
14.....	225	-129	-70	-82	+70	+147	-11	-11	-39	+67	-34
15.....	200	-16	-97	-51	+9	+34	+9	+61	-71	+65	-75
16.....	184	-44	-89	-62	+20	+55	-1	+19	-75	+58	-50
17.....	168	-37	-73	-100	+9	+25	-10	+21	+4	+58	-30
18.....	149	-140	+32	-27	-42	-7	+4	+16	-24	-34	-48
19.....	133	-54	+30	-65	-42	-6	-1	+32	+14	+68	+2
20.....	120	-15	+9	-52	-40	+33	-12	-6	+9	+19	-2
21.....	112	-42	-17	-17	-53	+31	-5	+6	+4	+65	-15
22.....	105	-61	+15	+17	+2	-29	-34	+8	-6	+47	-24
23.....	99	-90	-99	-51	-24	-3	+8	+14	+30	+41	+10
24.....	92	-57	-58	+3	-49	+46	+10	+3	+20	-2	-15
25.....	87	+18	-61	-19	+1	+50	-1	+13	-40	+3	+14
26.....	82	+23	-22	-28	-12	-21	-11	-11	-5	0	-9
27.....	76	-23	+19	-35	+10	+6	-5	-14	+10	+6	+42
28.....	79	-9	-36	-18	-9	+3	+7	+15	-1	+16	+10
29.....	80	-54	-11	-46	-16	+32	-14	-14	-15	-23	+9
30.....	77	-24	-43	-9	+70	+25	+34	+23	+18	-8	+16
31.....	80	-36	-28	-19	+27	-24	-4	+29	-7	+18	+9
32.....	84	-23	-24	-57	-30	-8	+3	+43	-15	+52	+50
33.....	78	-52	+8	+17	-14	-17	+14	+21	+21	+8	+15
34.....	79	-18	-19	+84	+7	-23	+48	+2	+8	+23	-2
35.....	80	-36	+15	-12	-48	-14	+1	-19	+15	-10	+25
36.....	77	-33	-34	+11	-13	-36	+15	+46	+1	-12	-45
37.....	76	+12	+1	-22	-12	-25	+16	+71	+1	+2	-7
38.....	73	-52	+25	-30	-3	+3	-27	+45	0	-62	-13
39.....	86	-77	-43	-32	-6	-15	0	+23	+31	+41	+23
40.....	88	-53	-45	+14	-24	-27	-7	+20	-10	+18	+46
41.....	94	+29	+26	+28	-8	+69	-28	+24	-12	+13	+40
42.....	102	-14	+18	-34	-32	-15	+35	-31	-3	-7	+7
43.....	116	-11	-39	+20	-9	-29	+63	-12	+91	-22	+7
44.....	127	+22	-23	-12	+7	-5	+51	+34	-11	+17	+11
45.....	139	-43	-21	-24	+38	-22	+14	+45	+7	-12	+3
46.....	148	+1	-2	-87	-30	+61	+25	+41	+28	-45	+10
47.....	162	-31	-86	-67	+25	-45	+32	+84	-16	-2	-12
48.....	170	-10	-51	-40	+1	-44	+28	+28	-25	+17	+43
49.....	174	+1	-77	+111	+8	+20	+91	+20	-24	+55	+123
50.....	184	+35	-59	-1	-2	+30	+48	+43	+66	+91	+136
51.....	197	+13	-37	-41	-31	+7	+37	-88	+109	+262	+115
52.....	203	+51	-50	-6	-53	+41	+152	-38	+189	+572	+137

¹ Excess over or deviation from the median death rate for the corresponding week for the period 1921-1927. The series of 52 medians representing "normal" or "expected" rates for the different weeks of the year were smoothed by a 5-period moving average before deviations were computed. The smoothed medians are the values in the first column of the table.

² Number of cities: 1920, 3; 1921-22, 4; 1923, 5; 1924-1926, 6; 1927-1929, 7.

TABLE 15.—*Excess¹ weekly death rates (annual basis) per 100,000 from influenza and pneumonia, 1920-1929*ABOUT 9 CITIES² IN THE MOUNTAIN STATES

Week of year	Median, 1921-1927 (smoothed) ¹	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
1.....	281	+52	+88	+92	+28	+5	-33	-108	+151	-33	+111
2.....	276	+110	+114	-58	+33	+39	+1	+116	+21	-40	+89
3.....	281	+159	+151	-84	+48	+5	+53	+10	-11	-24	+76
4.....	286	+455	-128	-27	+13	-85	+67	-49	-43	-29	-59
5.....	281	+2,881	-28	+40	+18	-81	-83	+56	-92	-25	-98
6.....	286	+2,650	+5	+72	+118	-32	+54	+175	-64	-77	-20
7.....	288	+1,247	+7	-8	+70	-2	-12	-6	-72	-49	+24
8.....	289	+677	-78	+105	+150	-12	-3	+221	-100	-6	+15
9.....	271	+212	+14	+185	+78	-71	-90	+75	-91	+82	+80
10.....	263	+91	-42	+473	+155	-91	-5	+183	-38	+77	-19
11.....	261	+104	-18	+371	+68	+45	-41	-15	-81	+22	+27
12.....	252	+81	-73	+194	+97	-42	-14	+3	-54	+49	-9
13.....	250	+61	-29	+185	+29	+122	+93	-68	-61	-91	-67
14.....	233	+35	-12	-46	+6	+149	+120	-50	+46	-50	-87
15.....	220	-16	-72	+70	+69	+104	+28	-19	-49	+19	-90
16.....	192	+44	-23	-47	-53	+85	+103	-37	-30	-33	-61
17.....	178	+101	-62	-54	+41	+89	-6	-51	+20	-28	-39
18.....	151	+117	-14	-47	+28	+107	-8	-51	-43	+43	+31
19.....	139	+22	+30	+27	+80	+100	+80	-30	-76	+21	-26
20.....	129	+64	-13	-25	-10	+5	+62	-47	-57	-5	+1
21.....	125	+57	+33	+41	-25	-10	-49	-25	-80	+52	+23
22.....	115	+57	-29	+30	-25	+57	+9	+49	-43	+35	+15
23.....	108	+12	+29	+68	+2	+26	+7	-17	-9	-20	-12
24.....	106	+44	-32	-2	+13	+37	+37	-6	+56	-44	+7
25.....	94	-40	-10	-1	-24	-8	-27	-15	-13	+3	-16
26.....	88	-24	-56	+26	+2	+27	-21	-33	+11	-7	+60
27.....	78	+29	-36	-16	-38	-2	-2	-12	+21	-7	-17
28.....	74	+23	+10	+9	+16	+21	+12	-29	+141	+0	-4
29.....	65	-1	-33	+8	+5	-27	+2	+8	-11	+24	+31
30.....	66	+31	-21	+7	+24	+1	+10	-11	-30	+23	+4
31.....	62	+2	-20	-21	-22	-24	-33	+11	+1	0	+8
32.....	58	+30	+5	-17	+22	+18	+9	+24	+5	+23	+3
33.....	60	+4	+24	-19	0	+7	+17	+22	-24	+2	-8
34.....	65	+10	-41	-21	-15	+30	+21	+26	-20	-31	-4
35.....	71	+4	+3	+12	-31	+58	+34	+2	+1	0	-18
36.....	71	+4	-8	-40	-21	+34	-1	+29	+28	-27	-19
37.....	63	+3	-20	-31	-53	+12	+54	+35	+25	-39	-4
38.....	89	+18	+6	-37	-19	-13	-1	-25	-35	-18	+24
39.....	100	+10	-5	-38	-10	+15	+43	+73	+8	-65	-13
40.....	112	-5	-14	-60	-52	+3	-7	-39	+5	-32	+10
41.....	129	-32	-34	-15	-59	+21	-5	+16	-3	-5	+19
42.....	134	-27	+3	+1	-74	+76	+19	+20	+28	-10	+5
43.....	145	-16	-40	0	+54	+8	-57	+46	+26	+23	-6
44.....	150	+11	-55	+16	-1	-93	-35	+32	-15	-35	+7
45.....	156	-102	+2	+51	-46	-80	+25	+26	+6	-32	-25
46.....	157	+25	+43	+113	-8	-52	+91	-39	-22	+11	+26
47.....	175	+72	-27	+84	+104	+6	-3	+7	-58	+21	-59
48.....	171	+11	-13	+36	-52	-28	+10	+84	-90	+341	+3
49.....	195	+127	+58	+147	-36	+44	+5	-50	+39	+654	-25
50.....	205	+10	-78	+158	-76	+21	-81	+77	-61	+1,157	-9
51.....	235	+173	+18	+117	+34	+89	+4	-44	+35	+756	+26
52.....	252	+295	-83	-76	-73	-23	+39	-6	+18	+376	-17

¹ Excess over or deviation from the median death rate for the corresponding week for the period 1921-1927. The series of 52 medians representing "normal" or "expected" rates for the different weeks of the year were smoothed by a 5-period moving average before deviations were computed. The smoothed medians are the values in the first column of the table.

² Number of cities: 1920-1922, 7; 1923, 8; 1924-1929, 9.

TABLE 16.—*Excess¹ weekly death rates (annual basis) per 100,000 from influenza and pneumonia, 1920-1929*ABOUT 4 CITIES² IN THE PACIFIC STATES

Week of year	Median 1921-1927 (smoothed) ¹	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
1.....	169	-21	-91	-38	-63	+40	+35	+108	+51	+31	+113
2.....	173	-20	-60	-21	-34	+31	+2	+40	+11	+6	+40
3.....	169	+100	-91	-72	-22	+19	+51	+55	-4	-10	+35
4.....	163	+191	-54	-15	-40	+13	+74	+89	-42	+2	+11
5.....	170	+449	-68	-9	-15	-36	-67	+82	-42	-8	-9
6.....	172	+810	-59	+27	+81	-21	+24	+1	-37	+30	+5
7.....	173	+626	-38	+131	+35	-26	+52	+97	+20	+26	-2
8.....	173	+442	-69	+529	+89	-18	+19	+4	-25	-38	0
9.....	164	+253	-38	+453	+110	-13	+4	-15	-26	+15	+23
10.....	151	+78	-13	+318	+98	-4	+20	-38	+4	-9	+16
11.....	149	+44	-49	+219	+80	-22	-6	-32	-42	-14	+8
12.....	146	+11	-69	+108	+38	+1	+66	-15	-8	-38	+57
13.....	140	+4	-36	+25	+40	+27	+48	-62	+12	-18	+33
14.....	139	-4	+13	-25	+16	-21	-8	+24	-5	-27	+12
15.....	128	-20	-54	-1	-18	+56	-1	+10	+3	-26	-7
16.....	121	-58	+14	+2	-35	+1	+38	-46	-14	-26	+49
17.....	113	-28	-48	-20	-39	+10	+26	-27	+25	+29	+25
18.....	102	-17	-45	+25	+66	+46	+37	-20	-2	-21	-11
19.....	96	-42	-44	-20	+43	+39	-6	0	+25	+19	+15
20.....	93	-17	-32	-30	-19	-7	+67	-36	+28	+22	-21
21.....	81	-18	-11	+16	+58	-8	+9	-6	+22	+17	+11
22.....	75	+33	-10	+1	-1	+35	+68	-4	+25	+3	+7
23.....	73	+12	-21	-14	+1	+25	-20	-6	+17	+15	+15
24.....	69	-33	-34	-10	+13	-4	0	+10	+31	+29	0
25.....	67	-13	-50	-4	+31	+15	-10	-24	+74	+20	+48
26.....	64	-6	-34	+4	+34	+14	+22	-17	+8	+44	-22
27.....	64	-42	-20	-1	+29	+10	+10	-7	-6	+14	-31
28.....	65	-25	-8	-10	+13	-24	-16	-15	+39	-1	-9
29.....	63	-23	-11	-8	+23	+27	+2	-21	+12	+21	+6
30.....	62	-17	-14	+6	+20	-5	+7	+13	+20	-52	-36
31.....	65	-16	-4	-27	-4	+8	+13	+3	0	+23	-13
32.....	62	-31	-49	+39	+3	-9	+28	-23	-4	-5	-19
33.....	63	-14	+2	+5	-30	+10	-2	+22	+9	+8	+15
34.....	62	-35	-18	-11	-17	-9	+7	-41	+7	-8	-10
35.....	64	-19	+10	-9	+18	+5	+42	+14	-9	-20	-34
36.....	63	-9	-19	+9	-10	+6	+43	-6	-4	+22	-27
37.....	63	-18	-37	+9	+2	+27	+6	-3	+33	+1	-20
38.....	61	+2	-13	-27	-12	0	0	+24	+8	+30	+8
39.....	64	-33	-20	-22	+14	+22	+34	-29	-12	+24	-22
40.....	70	+11	-5	-28	+28	+36	-13	-17	+2	-16	-11
41.....	73	-24	-60	-18	-12	+1	+21	+20	+13	-2	-7
42.....	79	-57	-22	-18	+35	+35	+4	+20	+35	+46	+13
43.....	89	-22	-50	+8	-20	-16	-32	+7	+18	+63	-40
44.....	91	-37	-61	-6	-13	+7	+19	-34	+16	+24	-55
45.....	92	-38	-35	+22	+6	+35	+26	+21	+8	+74	-1
46.....	99	-18	-16	-14	-9	+27	+11	-20	-20	+63	0
47.....	107	-53	+6	-1	+7	-21	-1	+17	-17	+157	-41
48.....	111	-3	+11	-43	-21	-9	-5	+53	+6	+369	+10
49.....	120	-75	+11	-6	+23	+56	-37	+5	-7	+468	+37
50.....	133	-75	-11	-23	+39	+6	-12	-2	+15	+423	-2
51.....	153	-41	-22	-35	-2	-50	-47	0	+26	+229	+21
52.....	163	-51	+11	-45	+9	-4	+11	+36	+3	+188	-35

¹ Excess over or deviation from the median death rate for the corresponding week for the period 1921-1927. The series of 52 medians representing "normal" or "expected" rates for the different weeks of the year were smoothed by a 5-period moving average before deviations were computed. The smoothed medians are the values in the first column of the table.

² Number of cities: 1920-1925, 3; 1926-1929, 4.

COURT DECISION RELATING TO PUBLIC HEALTH

Liability of city for act of health officer.—(Ohio Supreme Court; *City of Salem v. Harding*, 169 N. E. 457; decided October 23, 1929.) The city of Salem owned its public water system, the water being pumped from deep wells and conducted to a central reservoir. The water from one group of wells was conducted to the reservoir by means of a gravity line constructed of vitrified pipe with cemented joints. Not many feet from this gravity line and running parallel thereto was a sewer constructed of clay pipe without cemented joints. Property owners had been ordered to disconnect from this sewer, but such orders were apparently not complied with by everyone. Thereupon the city health officer, in conjunction with an employee of the service department of the city, plugged the outlet of the sewer. It was claimed that this caused the sewage to back up until the pressure was such that the sewage filtered through the intervening soil into the gravity water supply line.

The plaintiff in the trial court brought action against the city to recover damages because of typhoid fever contracted by his daughter as a result of the impure water supply, his action being grounded upon a claim that the city had been negligent. A verdict in favor of the city was rendered in the trial court, but on appeal to the court of appeals the judgment was reversed on the sole ground that the trial court had erroneously charged the jury as follows: That, even though the jury should find that the gravity line was contaminated by the plugging of the sewer, thereby forcing pollution into said gravity line, the verdict must nevertheless be for the defendant if the plugging was done by and under the instructions of the board of health or health officers of the city, and also that no action could be maintained or recovery had against the city based upon any acts of negligence either of commission or omission of its board of health or health officers.

The city appealed and the supreme court affirmed the judgment of the court of appeals. After citing another case to the effect that, while the construction and institution of a sewer system was a governmental matter, the operation and upkeep of sewers was a proprietary function, the supreme court said: "Still adhering to the proposition that the construction and institution of a sewer system is a governmental function, we are nevertheless of the opinion that the city is liable for any obstruction thereto, which is known to the city, if the city through its proper officers knew or in the exercise of ordinary care should have known that the obstruction would have an injurious effect upon life or property. The city being responsible for its negligence upon the foregoing principles and authorities, it may not escape that responsibility on the sole ground that it was acting in the exercise of its police power."

Another point determined was that the city was not a guarantor of the purity and wholesomeness of its water supply.

DEATHS DURING WEEK ENDED FEBRUARY 8, 1930

Summary of information received by telegraph from industrial insurance companies for the week ended February 8, 1930, and corresponding week of 1929. (From the Weekly Health Index, February 13, 1930, issued by the Bureau of the Census, Department of Commerce)

	Week ended Feb. 8, 1930	Corresponding week, 1929
Policies in force.....	73, 879, 260	73, 169, 143
Number of death claims.....	14, 874	19, 514
Death claims per 1,000 policies in force, annual rate.....	10. 5	13. 9

Deaths from all causes in certain large cities of the United States during the week ended February 8, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index, February 13, 1930, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Feb. 8, 1930		Annual death rate per 1,000, corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Feb. 8, 1930
	Total deaths	Death rate		Week ended Feb. 8, 1930	Corresponding week, 1929	
Total (63 cities).....	8, 075	14. 3	13. 8	740	899	67
Akron.....	49			12	6	110
Albany.....	48	20. 8	26. 0	4	6	87
Atlanta.....	94	19. 2	23. 7	9	10	95
White.....	59			5	5	159
Colored.....	35	(⁹)	(⁹)	4	5	63
Baltimore.....	259	16. 3	19. 2	16	28	54
White.....	199			11	14	47
Colored.....	60	(⁹)	(⁹)	5	14	81
Birmingham.....	85	19. 9	15. 5	10	10	93
White.....	46			5	6	77
Colored.....	39	(⁹)	(⁹)	5	4	118
Boston.....	232	15. 1	22. 2	24	28	68
Bridgeport.....	53			4	7	68
Buffalo.....	161	15. 1	18. 1	12	17	53
Cambridge.....	25	10. 4	15. 3	3	1	56
Camden.....	39	15. 0	11. 6	2	3	36
Canton.....	18	8. 0	8. 0	1	4	25
Chicago.....	788	13. 0	12. 6	69	65	61
Cincinnati.....	177			16	15	95
Cleveland.....	227	11. 7	11. 6	23	30	69
Columbus.....	84	14. 6	14. 8	10	14	98
Dallas.....	74	17. 7	13. 6	8	8	
White.....	55			7	5	
Colored.....	19	(⁹)	(⁹)	1	3	
Dayton.....	45	12. 7	13. 6	3	3	44
Denver.....	112	19. 9	20. 0	11	9	115
Des Moines.....	48	16. 5	10. 3	1	1	17
Detroit.....	351	13. 3	11. 0	52	38	80
Duluth.....	23	10. 3	12. 9	2	1	54
El Paso.....	27	12. 0	23. 0	3	14	
Erie.....	23			0	1	0
Fall River.....	32	12. 4	24. 8	2	8	45
Flint.....	31	10. 9	9. 1	6	5	70
Fort Worth.....	44	13. 4	10. 4	7	3	
White.....	33			4	2	
Colored.....	11	(⁹)	(⁹)	3	1	
Grand Rapids.....	27	8. 6	11. 1	2	4	30
Houston.....	73			11	4	
White.....	60			9	3	
Colored.....	13	(⁹)	(⁹)	2	1	
Indianapolis.....	119	16. 2	12. 7	9	11	67
White.....	103			8	11	69
Colored.....	16	(⁹)	(⁹)	1	0	54
Jersey City.....	73	11. 7	16. 4	17	9	145
Kansas City, Kans.....	32	14. 1	19. 0	4	2	95
White.....	25			4	1	102
Colored.....	7	(⁹)	(⁹)	0	1	0

Footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended February 8, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index, February 13, 1930, issued by the Bureau of the Census, Department of Commerce)—Continued

City	Week ended Feb. 1930		Annual death rate per 1,000, corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Feb. 8, 1930 ¹
	Total deaths	Death rate ¹		Week ended Feb. 8, 1930	Corresponding week, 1929	
Kansas City, Mo.	120	16.0	18.1	11	16	86
Knoxville.	33	16.3	14.3	1	3	23
White.	30			1	3	26
Colored.	3	(²)	(²)	0	0	0
Los Angeles.	307			24	19	73
Louisville.	84	13.3	17.1	8	5	70
White.	64			6	3	59
Colored.	20	(²)	(²)	2	2	145
Lowell.	33			3	5	71
Lynn.	32	15.8	15.8	3	3	76
Memphis.	93	25.5	21.9	9	6	107
White.	42			5	2	92
Colored.	51	(²)	(²)	4	4	135
Milwaukee.	127	12.2	13.8	19	27	96
Minneapolis.	102	11.7	10.6	6	11	39
Nashville.	46	17.2	23.2	10	7	155
White.	27			8	5	164
Colored.	19	(²)	(²)	2	2	127
New Bedford.	27			4	4	103
New Haven.	62	17.2	19.7	2	7	39
New Orleans.	171	20.8	18.0	20	8	116
White.	105			13	3	115
Colored.	66	(²)	(²)	7	5	118
New York.	1,655	14.3	17.7	161	213	63
Bronx, borough.	219	11.9	13.7	24	19	56
Brooklyn, borough.	562	12.7	16.0	49	89	52
Manhattan, borough.	655	19.5	23.7	60	86	96
Queens, borough.	163	9.9	12.9	16	15	46
Richmond, borough.	56	19.4	25.3	2	4	37
Newark, N. J.	130	14.3	13.3	9	17	47
Oakland.	66	12.6	10.8	4	4	48
Oklahoma City.	33			6	2	118
Omaha.	48	11.2	15.4	3	6	34
Paterson.	35	12.6	16.2	9	1	156
Philadelphia.	508	12.8	15.4	42	61	62
Pittsburgh.	215	16.6	19.7	22	33	81
Portland, Oreg.	94			5	3	61
Providence.	75	13.7	22.0	4	8	37
Richmond.	60	16.1	16.1	7	5	104
White.	32			3	3	67
Colored.	28	(²)	(²)	4	2	175
Rochester.	77	12.2	17.5	5	8	44
St. Louis.	247	15.2	17.4	12	20	39
St. Paul.	62			4	6	41
Salt Lake City.	34	12.8	14.0	4	3	63
San Antonio.	75	17.9	18.9	8	20	84
San Diego.	45			4	4	84
San Francisco.	209	18.6	16.9	7	15	48
Schenectady.	13	7.3	12.3	1	2	31
Seattle.	107	14.6	11.2	7	5	70
Somerville.	25	12.7	16.2	2	3	65
Spokane.	30	14.3	15.3	4	4	104
Springfield, Mass.	52	18.1	13.9	4	6	63
Syracuse.	55	14.4	14.1	2	2	25
Tacoma.	31	14.6	7.6	2	0	51
Toledo.	74	12.3	12.3	5	8	46
Trenton.	38	14.3	16.1	3	8	56
Washington, D. C.	145	13.7	17.9	7	10	41
White.	99			4	6	35
Colored.	46	(²)	(²)	3	4	53
Waterbury.	19			2	5	51
Wilmington, Del.	28	11.4	13.0	2	4	45
Worcester.	47	12.4	13.5	9	2	117
Yonkers.	28	12.0	13.3	6	6	143

¹ Annual rate per 1,000 population.

² Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.

³ Data for 71 cities.

⁴ Deaths for week ended Friday.

⁵ In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 38; Nashville, 50; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended February 8, 1930, and February 9, 1929

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended February 8, 1930, and February 9, 1929

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Feb. 8, 1930	Week ended Feb. 9, 1929	Week ended Feb. 8, 1930	Week ended Feb. 9, 1929	Week ended Feb. 8, 1930	Week ended Feb. 9, 1929	Week ended Feb. 8, 1930	Week ended Feb. 9, 1929
New England States:								
Maine.....	5	1	5	621	12	282	1	0
New Hampshire.....	3	1	1	123	58	95	0	0
Vermont.....				111	2	11	0	0
Massachusetts.....	118	91	2	593	323	442	2	6
Rhode Island.....	8	10		84	2	54	0	0
Connecticut.....	24	27	9	656	24	371	2	2
Middle Atlantic States:								
New York.....	139	257	53	1,413	534	984	17	32
New Jersey.....	120	125	16	149	323	254	4	14
Pennsylvania.....	136	156			730	1,378	3	9
East North Central States:								
Ohio.....	42	40	16	150	570	340	6	2
Indiana.....	43	39		149	55	266	31	0
Illinois.....	161	130	46	215	433	597	19	17
Michigan.....	64	76	7	146	374	189	22	18
Wisconsin.....	19	22	22	270	1,058	461	8	6
West North Central States:								
Minnesota.....	15	24	1	9	247	386	2	3
Iowa.....	4	15			461		9	1
Missouri ¹	9	53	33	199	48	411	8	18
North Dakota.....	3	3		13	54	39	0	6
South Dakota.....	1			4	77	29	0	0
Nebraska.....	14	23		10	599	24	6	4
Kansas.....	15	9	7	48	352	58	7	9
South Atlantic States:								
Delaware.....	2		2	5	3	11	0	0
Maryland ¹	35	32	51	1,136	8	96	2	1
District of Columbia.....	13	8	1	36	0	3	0	0
Virginia.....							6	1
West Virginia.....	12	18	70	1,321	85	65	2	2
North Carolina.....	32	36	44		5	27	2	1
South Carolina.....	26	27	1,214	2,107			5	0
Georgia.....	4	4	121	723		56	12	1
Florida.....	13	23	7	105	39	5	0	0
East South Central States:								
Kentucky.....		15		229	96		0	0
Tennessee.....	10	10	201	845	147	15	1	2
Alabama.....	27	27	309	1,108	68	43	5	4
Mississippi.....	28	11					7	1

¹ New York City only.

² Figures for 1930 are exclusive of St. Louis.

³ Week ended Friday.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended February 8, 1930, and February 9, 1929—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Feb. 8, 1930	Week ended Feb. 9, 1929	Week ended Feb. 8, 1930	Week ended Feb. 9, 1929	Week ended Feb. 8, 1930	Week ended Feb. 9, 1929	Week ended Feb. 8, 1930	Week ended Feb. 9, 1929
West South Central States:								
Arkansas.....	3	11	212	771	6	7	3	1
Louisiana.....	25	24	71	739	73	30	6	2
Oklahoma *.....	24	17	167	896	207	7	7	15
Texas.....	77	77	267	5,319	105	47	7	4
Mountain States:								
Montana.....	1	2	-----	55	18	214	1	6
Idaho.....	1	-----	-----	-----	99	5	5	2
Wyoming.....	-----	-----	4	26	37	3	1	1
Colorado.....	10	15	1	28	101	4	2	5
New Mexico.....	5	10	-----	10	116	12	5	1
Arizona.....	8	11	17	24	6	-----	4	12
Utah *.....	1	2	-----	4	88	2	5	8
Pacific States:								
Washington.....	15	9	-----	110	312	69	9	4
Oregon.....	7	18	84	56	29	127	2	2
California.....	62	63	63	112	943	49	12	15
Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Feb. 8, 1930	Week ended Feb. 9, 1929	Week ended Feb. 8, 1930	Week ended Feb. 9, 1929	Week ended Feb. 8, 1930	Week ended Feb. 9, 1929	Week ended Feb. 8, 1930	Week ended Feb. 9, 1929
New England States:								
Maine.....	1	0	71	10	0	9	5	1
New Hampshire.....	0	0	18	35	0	0	0	0
Vermont.....	0	0	6	0	3	4	1	1
Massachusetts.....	1	1	310	278	0	0	5	1
Rhode Island.....	0	0	38	21	0	0	0	0
Connecticut.....	0	1	135	43	0	0	0	0
Middle Atlantic States:								
New York.....	4	4	529	440	6	0	15	9
New Jersey.....	1	1	241	166	0	0	5	1
Pennsylvania.....	0	0	475	444	8	0	13	12
East North Central States:								
Ohio.....	3	0	278	210	242	37	16	15
Indiana.....	0	0	294	248	247	109	7	1
Illinois.....	2	0	661	417	128	103	6	9
Michigan.....	0	1	317	349	100	35	5	1
Wisconsin.....	1	0	144	141	42	17	5	1
West North Central States:								
Minnesota.....	0	0	161	185	8	2	3	5
Iowa.....	1	0	103	118	107	85	1	1
Missouri *.....	0	0	110	92	67	25	0	0
North Dakota.....	0	1	38	42	40	0	0	0
South Dakota.....	1	0	30	38	49	12	2	0
Nebraska.....	0	1	101	101	40	69	0	1
Kansas.....	0	0	177	127	97	33	1	1
South Atlantic States:								
Delaware.....	0	0	16	2	0	0	0	0
Maryland *.....	0	1	94	77	0	0	4	1
District of Columbia.....	0	0	12	22	0	0	4	0
Virginia.....	-----	-----	-----	-----	-----	-----	-----	-----
West Virginia.....	0	0	48	34	20	6	5	5
North Carolina.....	0	0	72	47	17	17	1	0
South Carolina.....	0	0	24	20	1	0	1	1
Georgia.....	0	0	24	15	0	0	1	2
Florida.....	0	0	19	10	1	0	3	13
East South Central States:								
Kentucky.....	0	0	65	75	17	14	6	3
Tennessee.....	0	0	49	41	15	1	2	3
Alabama.....	0	0	34	31	2	4	2	1
Mississippi.....	0	0	22	15	6	2	5	4

* Figures for 1930 are exclusive of St. Louis.

* Week ended Friday.

* Figures for 1930 are exclusive of Oklahoma City and Tulsa.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended February 8, 1930, and February 9, 1929—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Feb. 8, 1930	Week ended Feb. 9, 1929	Week ended Feb. 8, 1930	Week ended Feb. 9, 1929	Week ended Feb. 8, 1930	Week ended Feb. 9, 1929	Week ended Feb. 8, 1930	Week ended Feb. 9, 1929
West South Central States:								
Arkansas.....	0	0	20	36	12	5	5	8
Louisiana.....	0	0	22	36	3	7	6	8
Oklahoma.....	0	0	42	36	79	32	2	5
Texas.....	2	0	94	76	227	82	1	3
Mountain States:								
Montana.....	0	0	60	16	13	12	0	0
Idaho.....	0	0	5	15	12	20	1	0
Wyoming.....	0	0	5	19	1	0	0	0
Colorado.....	0	0	24	21	57	14	1	2
New Mexico.....	0	1	9	10	1	0	3	1
Arizona.....	0	0	8	3	19	3	0	1
Utah.....	0	0	9	10	0	3	0	0
Pacific States:								
Washington.....	0	0	86	41	92	45	7	2
Oregon.....	1	0	67	35	17	42	5	0
California.....	0	2	340	303	109	88	6	6

¹ Week ended Friday.

² Figures for 1930 are exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Menin- gococ- cus menin- gitis	Diph- theria	Influ- enza	Ma- laria	Mea- sles	Pellag- ra	Polio- mye- litis	Scarlet fever	Small- pox	Ty- phoid fever
<i>December, 1929</i>										
California.....	57	363	248	4	960	4	6	1,268	253	28
Georgia.....	8	89	424	144	90	38	3	119	2	10
Kansas.....	6	118	15		457		0	528	172	14
<i>January, 1930</i>										
Arkansas.....	16	32	594	63	21	24	0	95	79	14
Connecticut.....	3	108	48		199		0	702	0	1
Georgia.....	5	71	634	82	278	16	0	96	6	20
Nebraska.....	26	67	108		1,716		4	382	324	3
North Dakota.....	10	38	14		116		3	257	130	1
Porto Rico.....		38	31	1,019	165		0		0	33

<i>December, 1929</i>		Cases	Granuloma, coccidioidal:	Cases
Botulism:			California.....	4
California.....		1	Hookworm disease:	
Chicken pox:			California.....	1
California.....	1,392		Georgia.....	14
Georgia.....	132		Leprosy:	
Kansas.....	746		California.....	2
Conjunctivitis:			Lethargic encephalitis:	
Georgia.....		3	California.....	2
Dysentery:			Kansas.....	1
California (amebic).....		3	Mumps:	
California (bacillary).....		9	California.....	1,363
Georgia.....		10	Georgia.....	54
Food poisoning:			Kansas.....	244
California.....		29	Ophthalmia neonatorum:	
German measles:			California.....	1
California.....		37	Paratyphoid fever:	
Kansas.....		6	California.....	8

Rabies in animals:	Cases	Lethargic encephalitis:	Cases
California.....	56	Connecticut.....	1
Scabies:		North Dakota.....	4
Kansas.....	5	Mumps:	
Septic sore throat:		Arkansas.....	80
Georgia.....	27	Connecticut.....	197
Tetanus:		Georgia.....	85
California.....	3	Nebraska.....	125
Trachoma:		North Dakota.....	329
California.....	8	Porto Rico.....	13
Trichinosis:		Ophthalmia neonatorum:	
California.....	23	Arkansas.....	3
Tularaemia:		Connecticut.....	1
California.....	1	Porto Rico.....	3
Kansas.....	4	Puerperal fever:	
Typhus fever:		Porto Rico.....	10
Georgia.....	6	Rabies in animals:	
Undulant fever:		Connecticut.....	4
California.....	4	Scabies:	
Kansas.....	8	North Dakota.....	3
Vincent's angina:		Septic sore throat:	
Kansas.....	1	Connecticut.....	7
Whooping cough:		Georgia.....	21
California.....	342	Nebraska.....	63
Georgia.....	56	Tetanus:	
Kansas.....	190	Georgia.....	2
		Porto Rico.....	7
January, 1930		Tetanus, infantile:	
Anthrax:		Porto Rico.....	33
Nebraska.....	1	Trachoma:	
Chicken pox:		Arkansas.....	7
Arkansas.....	248	Georgia.....	1
Connecticut.....	756	Porto Rico.....	4
Georgia.....	172	Tularaemia:	
Nebraska.....	271	Georgia.....	6
North Dakota.....	136	Typhus fever:	
Colibacillosis:		Georgia.....	9
Porto Rico.....	3	Undulant fever:	
Conjunctivitis:		Connecticut.....	4
Connecticut.....	2	Nebraska.....	1
Dengue:		North Dakota.....	2
Arkansas.....	3	Vincent's angina:	
Dysentery:		North Dakota.....	10
Georgia.....	11	Whooping cough:	
Porto Rico.....	30	Arkansas.....	35
Filariasis:		Connecticut.....	292
Porto Rico.....	1	Georgia.....	90
German measles:		Nebraska.....	109
Connecticut.....	141	North Dakota.....	54
Hookworm disease:		Porto Rico.....	81
Arkansas.....	23		
Georgia.....	23		

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 93 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 29,800,000. The estimated population of the 87 cities reporting deaths is more than 29,075,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended February 1, 1930, and February 8, 1929

	1930	1929	Estimated expectancy
<i>Cases reported</i>			
Diphtheria:			
46 States.....	1,619	1,596	-----
93 cities.....	668	604	1,333
Measles:			
43 States.....	7,670	6,917	-----
93 cities.....	1,261	1,645	-----
Meningococcus meningitis:			
46 States.....	227	266	-----
93 cities.....	86	100	-----
Poliomyelitis:			
46 States.....	19	18	-----
Scarlet fever:			
46 States.....	5,422	4,693	-----
93 cities.....	1,741	1,303	1,496
Smallpox:			
46 States.....	1,628	1,061	-----
93 cities.....	188	45	59
Typhoid fever:			
46 States.....	129	125	-----
93 cities.....	30	23	37
<i>Deaths reported</i>			
Influenza and pneumonia:			
87 cities.....	1,049	1,980	-----
Smallpox:			
87 cities.....	0	1	-----
Raleigh, N. C.....	0	1	-----

City reports for week ended February 1, 1930

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1921 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Chicken pox, cases re- ported	Diphtheria		Influenza		Measles, cases re- ported	Mumps, cases re- ported	Pneu- monia, deaths reported
		Cases es- timated expect- ancy	Cases re- ported	Cases re- ported	Deaths reported			
NEW ENGLAND								
Maine:								
Portland		1						
New Hampshire:								
Concord	0	0	0		0	1	0	
Manchester	0	1	0		0	0	0	
Nashua	0	0	0		0	0	0	
Vermont:								
Barre	0	0	0		0	0	0	
Burlington	4	0	1		0	0	0	
Massachusetts:								
Boston	69	42	26	5	0	78	72	31
Fall River	5	4	6		0	0	4	
Springfield	5	4	5		0	0	2	
Worcester	15	5	4		0	60	0	
Rhode Island:								
Pawtucket	10	2	1		0	0	0	
Providence	4	10	9		0	0	0	13
Connecticut:								
Bridgeport	4	6	2	2	1	1	1	
Hartford	56	8	2		0	0	2	
New Haven	7	1	1	1	0	1	9	

City reports for week ended February 1, 1930—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneu- monia, deaths reported
		Cases es- timated expect- ancy	Cases reported	Cases reported	Deaths reported			
MIDDLE ATLANTIC								
New York:								
Buffalo.....		15						
New York.....	219	230	111	60	20	83	113	198
Rochester.....	5	11	1	1	0	6	0	8
Syracuse.....	39	4	0		0	0	102	6
New Jersey:								
Camden.....	3	7	7	1	1	0	0	3
Newark.....	58	19	28	6	0	50	13	12
Trenton.....	8	3	2		0	28	0	7
Pennsylvania:								
Philadelphia.....	84	75	29	5	4	37	39	57
Pittsburgh.....	33	25	24	3	6	83	3	35
Reading.....	8	2	2		0	1	0	3
Scranton.....	3	5	1		0	3	0	
EAST NORTH CENTRAL								
Ohio:								
Cincinnati.....	16	10	3		3	0	0	17
Cleveland.....	121	38	17	8	2	4	10	23
Columbus.....	13	5	0	6	1	8	0	10
Toledo.....	40	7	3	1	1	200	6	4
Indiana:								
Fort Wayne.....	0	4	5		2	1	0	2
Indianapolis.....	10	9	3		0	26	1	19
South Bend.....	4	2	1		0	1	0	2
Terre Haute.....	1	1	1		0	1	0	3
Illinois:								
Chicago.....	131	109	149	7	2	14	33	76
Springfield.....	4	1	0	3	0	0	0	0
Michigan:								
Detroit.....	56	53	37	7	6	145	50	39
Flint.....	14	4	0		0	5	0	6
Grand Rapids.....	5	2	0		4	1	0	0
Wisconsin:								
Kenosha.....	2	1	0		0	0	1	0
Madison.....	7	0	0		0	96	0	0
Milwaukee.....	153	22	8	1	1	1	38	9
Racine.....	8	2	9		0	0	4	0
Superior.....	0	0	0		0	62	0	0
WEST NORTH CENTRAL								
Minnesota:								
Duluth.....	7	1	0		0	22	2	3
Minneapolis.....	52	21	6		0	25	60	6
St. Paul.....	21	10	0		4	6	13	8
Iowa:								
Davenport.....	2	1	0			0	0	
Des Moines.....	1	2	0			28	0	
Sioux City.....	12	2	1			1	0	
Waterloo.....	6	0	0			115	2	
Missouri:								
Kansas City.....	31	6	3		1	3	0	14
St. Joseph.....	1	1	0		0	0	0	2
St. Louis.....		46						
North Dakota:								
Fargo.....	1	0	0		0	0	12	0
Grand Forks.....	2	0	0			0	0	
South Dakota:								
Aberdeen.....	7	0	0			0	1	
Sioux Falls.....	0	0	0			10	0	
Nebraska:								
Omaha.....	8	5	4		0	12	4	14
Kansas:								
Topeka.....	24	2	1	2	1	29	16	2
Wichita.....	15	4	2		0	5	2	5
SOUTH ATLANTIC								
Delaware:								
Wilmington.....	0	2	1		0	2	0	7
Maryland:								
Baltimore.....	74	30	15	30	3	1	3	38
Cumberland.....	0	1	0	1	1	0	1	0
Frederick.....	0	1	0		0	0	0	0
District of Columbia:								
Washington.....	25	21	24	1	0	4	0	22
Virginia:								
Lynchburg.....	5	2	0		0	129	12	2
Norfolk.....	9	1	3		0	0	13	3
Richmond.....	0	6	3		1	0	3	5
Roanoke.....	0	2	0		0	5	0	8

City reports for week ended February 1, 1930—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases estimated expectancy	Cases reported	Cases reported	Deaths reported			
SOUTH ATLANTIC—Continued								
West Virginia:								
Charleston.....	5	0	0	3	0	2	0	2
Wheeling.....	2	1	2	-----	0	5	0	3
North Carolina:								
Raleigh.....	6	0	0	-----	0	0	0	3
Wilmington.....	0	1	0	-----	0	0	0	1
Winston-Salem.....	0	1	2	1	0	0	0	7
South Carolina:								
Charleston.....	0	1	0	29	0	0	3	6
Columbia.....	7	0	1	-----	0	0	3	2
Georgia:								
Atlanta.....	7	4	8	34	0	0	9	9
Brunswick.....	0	0	0	-----	0	0	4	1
Savannah.....	6	1	0	1	0	0	0	2
Florida:								
Miami.....	1	2	7	-----	0	0	5	2
Tampa.....	3	1	2	-----	1	9	7	1
EAST SOUTH CENTRAL								
Kentucky:								
Covington.....	0	0	2	-----	0	0	0	4
Tennessee:								
Memphis.....	9	4	3	-----	0	3	6	10
Nashville.....	0	0	0	1	2	0	0	12
Alabama:								
Birmingham.....	7	3	4	27	4	3	2	9
Mobile.....	2	0	3	8	2	1	0	2
Montgomery.....	0	2	2	3	-----	2	0	-----
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith.....	3	0	0	-----	-----	0	0	-----
Little Rock.....	3	1	1	-----	0	0	1	5
Louisiana:								
New Orleans.....	0	13	29	10	9	23	0	22
Shreveport.....	5	2	2	-----	0	0	1	6
Oklahoma:								
Oklahoma City.....	2	1	1	2	0	3	0	7
Tulsa.....	27	2	0	-----	-----	88	0	-----
Texas:								
Dallas.....	13	7	12	7	4	61	6	11
Fort Worth.....	13	3	0	-----	3	0	0	7
Galveston.....	0	2	2	-----	0	0	0	1
Houston.....	4	6	12	-----	0	0	1	17
San Antonio.....	3	3	4	-----	10	0	0	20
MOUNTAIN								
Montana:								
Billings.....	0	0	1	-----	0	0	14	1
Great Falls.....	0	0	0	-----	0	1	43	0
Helena.....	0	1	0	-----	0	0	22	1
Missoula.....	0	0	0	-----	0	0	0	0
Idaho:								
Boise.....	1	1	0	-----	0	0	0	0
Colorado:								
Denver.....	-----	12	-----	-----	-----	-----	-----	-----
Pueblo.....	11	2	0	-----	0	0	29	3
New Mexico:								
Albuquerque.....	3	0	2	-----	0	0	18	0
Arizona:								
Phoenix.....	4	1	0	-----	1	1	3	6
Utah:								
Salt Lake City.....	24	3	1	-----	1	26	8	6
Nevada:								
Reno.....	0	0	0	-----	0	0	0	1
PACIFIC								
Washington:								
Seattle.....	39	5	2	-----	-----	0	49	-----
Spokane.....	18	3	1	-----	-----	1	0	-----
Tacoma.....	11	2	0	-----	0	0	2	6
Oregon:								
Portland.....	13	10	6	11	3	0	12	8
Salem.....	12	0	0	2	0	0	6	0
California:								
Los Angeles.....	76	44	17	22	1	35	44	27
Sacramento.....	6	2	1	-----	0	2	17	2
San Francisco.....	-----	17	-----	-----	-----	-----	-----	-----

City reports for week ended February 1, 1900—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
NEW ENGLAND											
Maine:											
Portland	3		0				1				
New Hampshire:											
Concord	0	0	0	0	0	0	0	0	0	0	13
Manchester	3	1	0	0	0	3	0	0	0	0	17
Nashua	0	0	0	0	0	0	0	0	0	0	
Vermont:											
Barre	1	0	0	0	0	0	0	0	0	0	3
Burlington	1	0	1	0	0	1	0	0	0	0	6
Massachusetts:											
Boston	84	70	0	0	0	11	1	0	0	76	222
Fall River	4	6	0	0	0	4	1	0	0	1	33
Springfield	10	9	0	0	0	1	0	0	0	19	58
Worcester	11	11	0	0	0	1	1	0	0	12	51
Rhode Island:											
Pawtucket	2	3	0	0	0	1	0	0	0	4	17
Providence	13	15	0	0	0	4	1	0	0	23	84
Connecticut:											
Bridgeport	13	9	0	0	0	1	0	0	0	2	35
Hartford	6	9	0	0	0	2	0	0	0	4	41
New Haven	9	8	0	0	0	0	0	0	0	10	51
MIDDLE ATLANTIC											
New York:											
Buffalo	31		0				1				
New York	314	217	0	0	0	97	8	5	2	56	1,680
Rochester	11	11	0	0	0	2	1	0	0	2	76
Syracuse	13	34	0	0	0	3	0	1	0	29	51
New Jersey:											
Camden	8	7	0	0	0	1	0	0	1	1	42
Newark	35	51	0	0	0	14	1	0	0	27	135
Trenton	6	16	0	0	0	2	0	0	0	12	46
Pennsylvania:											
Philadelphia	107	125	0	0	0	35	2	2	1	39	497
Pittsburgh	44	28	0	0	0	13	0	2	0	33	220
Reading	6	11	0	0	0	1	0	0	0	16	20
Scranton	5	1	0	0	0	0	0	1	0	0	
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	21	33	1	2	0	15	0	0	0	5	165
Cleveland	48	43	0	1	0	20	1	0	1	115	213
Columbus	12	15	0	0	0	4	0	0	0	4	96
Toledo	14	2	1	8	0	4	0	2	0	6	84
Indiana:											
Fort Wayne	6	9	1	15	0	0	0	1	0	6	26
Indianapolis	13	7	6	2	0	3	0	1	1	9	140
South Bend	3	13	1	0	0	0	0	0	0	0	21
Terre Haute	4	1	0	1	3	0	0	0	0	0	16
Illinois:											
Chicago	140	341	3	8	0	52	3	2	0	114	755
Springfield	4	3	0	2	0	1	0	0	0	10	21
Michigan:											
Detroit	111	122	2	16	0	24	1	1	0	54	329
Flint	13	22	1	6	0	1	0	0	0	13	44
Grand Rapids	14	18	0	0	0	0	0	0	0	4	38
Wisconsin:											
Kenosha	2	4	1	0	0	0	0	0	0	10	7
Madison	4	4	1	1	0	0	0	0	0	22	
Milwaukee	39	25	0	4	0	5	0	0	0	75	125
Racine	6	10	0	0	0	1	0	0	0	4	15
Superior	8	4	0	0	0	0	0	0	0	0	11
WEST NORTH CENTRAL											
Minnesota:											
Duluth	12	2	0	0	0	2	0	0	0	16	30
Minneapolis	62	15	4	0	0	2	0	0	0	6	96
St. Paul	36	15	1	0	0	3	0	1	0	17	67

City reports for week ended February 1, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culosis deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
WEST NORTH CEN- TRAL—contd.											
Iowa:											
Davenport.....	2	0	1	14	-----	-----	0	0	-----	0	-----
Des Moines.....	10	17	2	18	-----	-----	0	0	-----	0	25
Sioux City.....	2	1	1	0	-----	-----	0	0	-----	0	-----
Waterloo.....	3	4	0	14	-----	-----	0	0	-----	3	6
Missouri:											
Kansas City.....	16	41	2	0	0	10	0	0	0	9	119
St. Joseph.....	3	0	0	0	0	2	0	0	0	0	5.2
St. Louis.....	50	-----	2	-----	-----	-----	0	-----	-----	-----	-----
North Dakota:											
Fargo.....	2	2	0	1	0	0	0	0	0	11	5
Grand Forks.....	1	0	1	3	-----	-----	0	0	-----	0	-----
South Dakota:											
Aberdeen.....	0	0	0	0	-----	-----	0	0	-----	3	-----
Sioux Falls.....	3	1	0	8	-----	-----	0	0	-----	0	6
Nebraska:											
Omaha.....	6	12	1	2	0	6	1	1	0	1	87
Kansas:											
Topeka.....	2	5	0	0	0	0	0	0	0	4	19
Wichita.....	6	28	0	2	0	0	0	0	0	1	47
SOUTH ATLANTIC											
Delaware:											
Wilmington....	6	5	0	0	0	2	0	0	0	1	43
Maryland:											
Baltimore.....	36	45	0	0	0	23	2	2	0	13	222
Cumberland.....	1	0	0	0	0	0	0	1	0	0	11
Frederick.....	1	5	0	0	0	0	0	0	0	0	2
District of Colum- bia:											
Washington.....	27	16	1	0	0	10	1	0	0	7	160
Virginia:											
Lynchburg.....	1	1	0	0	0	0	0	0	0	3	7
Norfolk.....	3	5	1	0	0	3	0	0	1	1	-----
Richmond.....	4	5	0	0	0	4	1	0	0	0	56
Roanoke.....	2	0	0	0	0	2	0	0	0	0	31
West Virginia:											
Charleston.....	1	1	0	0	0	2	1	0	0	14	18
Wheeling.....	2	3	0	0	0	0	0	0	0	3	20
North Carolina:											
Raleigh.....	1	0	0	0	0	2	0	0	0	3	17
Wilmington.....	0	2	0	0	0	1	0	0	0	3	10
Winston-Salem.....	1	3	1	3	0	1	0	0	0	1	17
South Carolina:											
Charleston.....	0	5	1	0	0	3	1	1	0	0	26
Columbia.....	0	0	0	0	0	1	0	0	0	8	17
Georgia:											
Atlanta.....	5	13	3	0	0	5	0	0	0	0	87
Brunswick.....	0	0	0	0	0	1	0	0	0	0	4
Savannah.....	0	3	1	0	0	3	0	0	0	0	34
Florida:											
Miami.....	1	5	1	0	0	1	0	1	0	0	33
Tampa.....	1	5	0	0	0	1	1	0	0	0	27
EAST SOUTH CENTRAL											
Kentucky:											
Covington.....	2	3	1	1	0	0	0	0	0	0	20
Tennessee:											
Memphis.....	8	12	0	1	0	7	0	0	0	17	77
Nashville.....	2	1	0	0	0	7	0	1	0	0	70
Alabama:											
Birmingham.....	3	3	3	0	0	5	1	0	0	2	87
Mobile.....	0	2	0	0	0	0	0	0	0	0	18
Montgomery.....	1	2	0	0	-----	-----	0	0	-----	0	-----
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith.....	0	2	0	0	-----	-----	0	0	-----	3	-----
Little Rock.....	1	1	0	2	0	4	1	0	0	1	-----

City reports for week ended February 1, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
WEST SOUTH CENTRAL—continued											
Louisiana:											
New Orleans...	7	3	1	0	0	19	3	1	0	0	194
Shreveport....	0	2	0	0	0	0	0	0	0	0	23
Oklahoma:											
Oklahoma City	2	0	2	0	0	1	0	1	0	0	35
Tulsa.....	2	2	1	4			0	0		7	
Texas:											
Dallas.....	5	6	2	7	0	6	0	0	0	0	78
Fort Worth....	2	3	1	0	0	1	0	0	0	0	49
Galveston.....	1	0	0	0	0	0	0	0	0	0	10
Houston.....	3	6	2	10	0	4	0	0	0	0	96
San Antonio...	2	1	0	2	0	11	0	0	0	0	104
MOUNTAIN											
Montana:											
Billings.....	0	1	0	0	0	0	0	0	0	0	9
Great Falls....	2	21	1	0	0	0	0	0	0	0	9
Helena.....	0	1	0	0	0	1	0	0	0	0	6
Missoula.....	1	2	1	2	0	0	0	0	0	0	7
Idaho:											
Boise.....	1	0	0	0	0	0	0	0	0	0	4
Colorado:											
Denver.....	12		0				0				
Pueblo.....	2	0	0	0	0	1	0	1	0	0	11
New Mexico:											
Albuquerque...	1	0	0	0	0	4	0	0	0	0	7
Arizona:											
Phoenix.....	1	1	0	19	0	6	0	0	1	0	32
Utah:											
Salt Lake City.	4	8	2	1	0	1	0	0	0	31	53
Nevada:											
Reno.....	0	3	0	2	0	0	0	0	0	0	2
PACIFIC											
Washington:											
Seattle.....	11	26	3	3			1	2		7	
Spokane.....	5	1	7	56			0	1		8	
Tacoma.....	3	4	3	4	0	0	0	0	0	19	21
Oregon:											
Portland.....	6	1	14	8	0	1	0	1	0	15	85
Salem.....	0	1	1	0	0	0	0	0	0	17	
California:											
Los Angeles....	40	66	3	4	0	22	1	3	0	23	292
Sacramento....	2	16	1	8	0	3	0	0	0	0	27
San Francisco..	20		2				1				

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Massachusetts:									
Boston	3	1	0	0	0	0	1	0	0
Worcester	0	0	1	0	0	0	0	0	0
Rhode Island:									
Providence	0	0	0	1	0	0	0	0	0
Connecticut:									
Hartford	0	2	0	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
New York	7	8	2	0	0	0	1	0	0
New Jersey:									
Camden	1	1	0	0	0	0	0	0	0
Newark	2	2	1	0	0	0	0	0	0
Pennsylvania:									
Philadelphia	5	4	1	1	0	0	0	0	0
Pittsburgh	1	0	0	0	0	0	0	0	0

City reports for week ended February 1, 1930—Continued.

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
EAST NORTH CENTRAL									
Ohio:									
Cincinnati.....	1	0	0	0	0	0	0	0	0
Cleveland.....	5	1	0	0	0	0	1	0	0
Columbus.....	1	1	1	1	0	0	0	0	0
Toledo.....	0	0	1	1	0	0	0	0	0
Indiana:									
Indianapolis.....	2	3	0	0	0	0	0	0	0
South Bend.....	0	0	0	1	0	0	0	0	0
Illinois:									
Chicago.....	6	3	1	0	0	0	0	0	0
Michigan:									
Detroit.....	16	4	1	0	0	0	0	0	0
Wisconsin:									
Milwaukee.....	1	1	0	0	0	0	0	0	0
Racine.....	0	1	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
Minneapolis.....	1	0	0	0	0	0	0	0	0
Iowa:									
Waterloo.....	5	2	0	0	0	0	0	0	0
Nebraska:									
Omaha.....	1	0	0	0	0	0	0	0	0
SOUTH ATLANTIC									
Maryland:									
Baltimore.....	4	1	0	0	0	0	0	0	0
District of Columbia:									
Washington.....	1	0	0	0	0	0	0	0	0
South Carolina:									
Charleston.....	0	0	0	0	2	1	0	0	0
Columbia.....	0	1	0	0	0	0	0	0	0
Georgia:									
Atlanta.....	12	1	0	0	0	2	0	0	0
Savannah ¹	0	0	0	0	2	2	0	0	0
Florida:									
Tampa.....	0	0	0	0	0	1	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis.....	3	1	0	0	0	0	0	0	0
Nashville.....	1	0	0	0	0	0	0	0	0
Alabama:									
Birmingham.....	0	0	1	1	0	0	0	0	0
Mobile.....	1	1	0	0	0	0	0	0	0
WEST SOUTH CENTRAL									
Louisiana:									
New Orleans.....	0	2	0	0	1	1	0	0	0
Oklahoma:									
Oklahoma City.....	0	1	0	0	0	0	0	0	0
Texas:									
Dallas.....	2	1	0	0	1	1	0	1	0
Fort Worth.....	1	0	0	0	0	1	0	0	0
Houston.....	0	0	0	0	0	2	0	0	0
MOUNTAIN									
New Mexico:									
Albuquerque.....	0	0	1	0	0	0	0	0	0
Arizona:									
Phoenix.....	0	1	0	0	0	0	0	0	0
Utah:									
Salt Lake.....	2	3	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle.....	2	0	0	0	0	0	0	0	0
Oregon:									
Portland.....	0	0	1	0	0	0	0	0	0
California:									
Los Angeles.....	1	0	0	0	1	0	0	1	0
Sacramento.....	0	0	0	0	0	0	0	0	1

¹ Typhus fever: 3 cases at Savannah, Ga.

The following table gives the rates per 100,000 population for 98 cities for the 5-week period ended February 1, 1930, compared with those for a like period ended February 2, 1929. The population figures used in computing the rates are approximate estimates, authoritative figures for many of the cities not being available. The 98 cities reporting cases have an estimated aggregate population of more than 32,000,000. The 91 cities reporting deaths have more than 30,500,000 estimated population.

*Summary of weekly reports from cities, December 29, 1929, to February 1, 1930—
Annual rates per 100,000 population, compared with rates for the corresponding period of 1928-29:*

DIPHTHERIA CASE RATES

	Week ended—									
	Jan. 4, 1930	Jan. 5, 1929	Jan. 11, 1930	Jan. 12, 1929	Jan. 18, 1930	Jan. 19, 1929	Jan. 25, 1930	Jan. 26, 1929	Feb. 1, 1930	Feb. 2, 1929
98 cities.....	117	148	118	139	110	¹ 132	² 114	125	⁴ 115	109
New England.....	136	103	156	183	122	177	146	200	⁵ 125	108
Middle Atlantic.....	86	178	113	157	94	158	96	136	⁶ 108	133
East North Central.....	155	153	130	124	127	⁷ 107	145	122	140	106
West North Central.....	114	101	123	158	108	146	82	115	⁷ 47	90
South Atlantic.....	86	111	83	118	103	99	106	79	106	107
East South Central.....	112	83	79	190	67	171	74	137	94	68
West South Central.....	201	111	170	119	205	76	157	114	232	95
Mountain.....	52	70	69	87	51	61	⁸ 51	52	³ 34	70
Pacific.....	120	60	85	67	94	104	92	92	⁹ 68	65

MEASLES CASE RATES

98 cities.....	130	196	176	235	208	¹ 218	² 227	261	⁴ 221	274
New England.....	125	904	112	873	157	700	210	667	⁵ 315	514
Middle Atlantic.....	76	80	116	94	124	70	117	86	⁶ 180	93
East North Central.....	118	230	153	315	152	⁷ 303	137	381	168	418
West North Central.....	277	198	303	394	364	423	457	627	⁷ 604	770
South Atlantic.....	132	114	118	66	167	84	157	84	287	103
East South Central.....	7	14	13	7	40	34	27	27	61	7
West South Central.....	101	24	325	43	400	11	624	34	314	34
Mountain.....	197	383	146	427	240	853	⁸ 377	871	³ 462	697
Pacific.....	315	40	517	115	676	56	730	75	⁹ 124	90

SCARLET FEVER CASE RATES

98 cities.....	249	195	271	221	278	¹ 225	² 295	230	⁴ 305	232
New England.....	377	298	397	317	383	294	419	317	⁵ 313	303
Middle Atlantic.....	186	148	232	190	223	183	239	217	⁶ 252	190
East North Central.....	344	239	352	251	398	⁷ 258	379	263	420	290
West North Central.....	248	258	216	283	260	248	307	296	⁷ 346	306
South Atlantic.....	186	154	201	124	198	122	176	114	205	131
East South Central.....	125	197	106	156	101	232	169	232	162	157
West South Central.....	89	142	120	182	134	183	105	99	⁷ 78	145
Mountain.....	378	113	481	157	335	183	⁸ 479	104	³ 616	61
Pacific.....	271	185	281	282	276	377	402	258	⁹ 307	350

¹ The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1930, and 1929, respectively.

² South Bend, Ind., not included.

³ Denver, Colo., not included.

⁴ Portland, Me., Buffalo, N. Y., St. Louis, Mo., Denver, Colo., and San Francisco, Calif., not included.

⁵ Portland, Me., not included.

⁶ Buffalo, N. Y., not included.

⁷ St. Louis, Mo., not included.

⁸ San Francisco, Calif., not included.

Summary of weekly reports from cities, December 29, 1929, to February 1, 1930—
Annual rates per 100,000 population, compared with rates for the corresponding
period of 1928-29—Continued

SMALLPOX CASE RATES

	Week ended—									
	Jan. 4, 1930	Jan. 5, 1929	Jan. 11, 1930	Jan. 12, 1929	Jan. 18, 1930	Jan. 19, 1929	Jan. 25, 1930	Jan. 26, 1929	Feb. 1, 1930	Feb. 2, 1929
98 cities.....	20	3	29	5	33	17	26	8	33	7
New England.....	0	0	0	2	0	0	4	0	0	0
Middle Atlantic.....	0	1	0	0	0	0	1	0	0	0
East North Central.....	16	6	27	3	36	16	19	8	39	10
West North Central.....	80	2	89	6	121	13	70	2	53	8
South Atlantic.....	2	0	0	2	5	6	2	7	5	11
East South Central.....	0	7	7	41	0	7	0	14	13	7
West South Central.....	15	4	43	16	41	46	37	46	78	27
Mountain.....	52	35	43	78	51	17	34	61	86	78
Pacific.....	107	5	170	7	144	17	177	19	244	7

TYPHOID FEVER CASE RATES

98 cities.....	3	4	3	4	6	14	14	4	5	4
New England.....	2	5	0	2	4	4	0	2	0	2
Middle Atlantic.....	1	2	3	4	3	4	5	2	5	4
East North Central.....	3	3	2	1	3	13	3	4	3	1
West North Central.....	0	0	2	0	11	2	2	4	6	6
South Atlantic.....	6	9	9	4	5	6	7	2	7	7
East South Central.....	7	0	7	7	13	21	20	7	7	0
West South Central.....	0	4	4	28	7	8	4	23	4	8
Mountain.....	9	9	0	0	60	0	17	0	17	0
Pacific.....	10	7	5	0	5	2	2	10	20	7

INFLUENZA DEATH RATES

91 cities.....	17	234	19	241	19	183	22	131	18	84
New England.....	7	48	0	100	9	141	9	204	2	141
Middle Atlantic.....	10	165	14	161	15	152	14	134	16	83
East North Central.....	15	238	12	236	17	148	17	70	13	48
West North Central.....	27	240	30	165	27	123	18	69	18	45
South Atlantic.....	18	343	31	395	22	288	31	182	11	114
East South Central.....	29	970	65	1,592	44	948	59	619	59	298
West South Central.....	79	596	64	467	65	320	111	199	88	168
Mountain.....	17	218	43	165	26	157	0	70	17	35
Pacific.....	13	134	15	70	15	75	18	44	5	41

PNEUMONIA DEATH RATES

91 cities.....	170	383	167	408	155	366	142	327	171	273
New England.....	163	201	170	323	115	442	126	465	177	507
Middle Atlantic.....	181	395	192	443	167	446	135	454	165	360
East North Central.....	115	466	122	414	109	280	111	184	129	170
West North Central.....	195	216	192	285	207	241	148	189	160	189
South Atlantic.....	221	360	177	485	170	474	196	388	218	268
East South Central.....	251	533	136	659	102	455	221	358	272	209
West South Central.....	329	670	210	528	237	383	310	297	314	191
Mountain.....	180	174	223	200	249	200	171	157	205	148
Pacific.....	118	148	147	134	169	119	95	123	167	113

¹ South Bend, Ind., not included.

² Denver, Colo., not included.

³ Portland, Me., Buffalo, N. Y., St. Louis, Mo., Denver, Colo., and San Francisco, Calif., not included.

⁴ Portland, Me., not included.

⁵ Buffalo, N. Y., not included.

⁶ St. Louis, Mo., not included.

⁷ San Francisco, Calif., not included.

⁸ Concord, N. H., Buffalo, N. Y., Denver, Colo., and San Francisco, Calif., not included.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Weeks ended January 25 and February 1, 1930.—The Department of Pensions and National Health reports cases of certain communicable diseases in Canada for the weeks ended January 25 and February 1, 1930, as follows:

Week ended January 25, 1930

Province	Cerebro-spinal fever	Influenza	Dysentery	Small-pox	Typhoid fever
Prince Edward Island ¹					
Nova Scotia		3			
New Brunswick ¹					
Quebec	1				5
Ontario	1	7		13	5
Manitoba				1	
Saskatchewan				33	1
Alberta	1			2	
British Columbia	1		2	6	
Total	4	10	2	55	11

Week ended February 1, 1930

Province	Cerebro-spinal fever	Influenza	Poliomyelitis	Small-pox	Typhoid fever
Prince Edward Island ¹					
Nova Scotia		4			
New Brunswick ¹					
Quebec				6	7
Ontario	2	24		19	21
Manitoba				1	
Saskatchewan			1	19	
Alberta			2	8	
British Columbia				4	1
Total	2	28	3	57	29

¹ No case of any disease included in the table was reported during the week.

Quebec Province—Communicable diseases—Week ended February 1, 1930.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended February 1, 1930, as follows:

Disease	Cases	Disease	Cases
Chicken pox	114	Ophthalmia neonatorum	1
Diphtheria	44	Scarlet fever	119
German measles	10	Smallpox	6
Influenza	37	Tuberculosis	72
Measles	126	Typhoid fever	7
Mumps	127	Whooping cough	129

Quebec Province—Vital statistics—November, 1929.—Births, deaths, and marriages for the month of November, 1929, in the Province of Quebec, Canada, with deaths from certain principal causes, are shown in the following table:

Estimated population.....	2,691,000	Deaths from—Continued.	
Births.....	6,002	Heart disease.....	352
Birth rate per 1,000 population.....	27.1	Influenza.....	46
Deaths.....	2,514	Measles.....	23
Death rate per 1,000 population.....	11.4	Pneumonia.....	214
Marriages.....	1,141	Poliomyelitis.....	2
Deaths under 1 year.....	590	Scarlet fever.....	17
Deaths under 1 year per 1,000 births.....	98.3	Syphilis.....	6
Deaths from—		Tuberculosis (pulmonary only).....	171
Cancer.....	128	Tuberculosis (other forms).....	44
Cerebrospinal meningitis.....	5	Typhoid fever.....	15
Diabetes.....	26	Violence.....	100
Diarrhea.....	100	Whooping cough.....	28
Diphtheria.....	54		

CHINA

Meningitis.—During the two weeks ended January 25, 1930, 7 cases of meningitis, with 7 deaths were reported in Canton, China. One imported case of meningitis, with 1 death, was reported at Hong Kong during the week ended January 25.

CUBA

Provinces—Communicable diseases—Four weeks ended January 18, 1930.—During the four weeks ended January 18, 1930, cases of certain communicable diseases were reported in the provinces of Cuba as follows:

Disease	Pinar del Rio	Habana	Matanzas	Santa Clara	Camaguey	Oriente	Total
Cancer.....		4	1	2			7
Cerebrospinal meningitis.....			1				1
Chicken pox.....		13		2		3	17
Diphtheria.....	3	5	1	7	1		17
Malaria.....		23			13	56	92
Measles.....		7		10			17
Paratyphoid fever.....	2			2	8	1	13
Poliomyelitis.....				1			1
Scarlet fever.....		6	1	1		4	11
Typhoid fever.....	8	36		52	7	13	116

EGYPT

Plague—Years 1929–1928 (comparative).—The following tables, taken from the reports of the Egyptian Public Health Service, give data regarding the incidence of plague in Egypt during the years 1929 and 1928. During 1929, out of 182 cases 13 cases occurred in foreigners, and in 1928, of the 517 cases all but one case occurred in natives.

Occurrence of plague in Egypt, by provinces

Province	Number of cases, 1929	Number of cases, 1928	Province	Number of cases, 1929	Number of cases, 1928
Alexandria.....	61	5	Girga Province.....	3	8
Beni Suef Province.....	34	163	Behelra Province.....	3	7
Gharbia Province.....	23	6	Menoufia Province.....	3	18
Port Said.....	17	1	Suez.....	1	40
Dakahliah Province.....	16	0	Qalloubieh.....	1	0
Assiout Province.....	7	9	Fayoum Province.....	1	1
Minia Province.....	5	217	Qena Province.....	1	4
Assouan Province.....	6	0	Western Desert Province.....	0	38

Occurrence of plague in Egypt, by type of disease

	Bubonic	Septicemic	Pneumonic	Total
1928				
Cases.....	485	31	1	517
Deaths.....	147	31	1	179
1929				
Cases.....	167	15	0	182
Deaths.....	54	15	0	69

TRINIDAD (BRITISH WEST INDIES)

Port of Spain—Vital statistics (comparative)—December, 1929.—The following statistics for the month of December for the years 1925 to 1929 are taken from a report issued by the Public Health Department of Port of Spain, Trinidad:

December

	1925	1926	1927	1928	1929
Number of births.....	178	143	174	174	168
Birth rate per 1,000 population.....	32.8	26.1	31.5	31.3	29.8
Number of deaths.....	111	142	146	118	146
Death rate per 1,000 population.....	21.0	25.9	26.4	21.2	25.7
Deaths under 1 year.....	17	29	25	16	22
Infant mortality rate per 1,000 births.....	95.5	202.8	143.8	91.9	130.9

From medical officers of the Public Health Service, American consuls, International Office of Public Hygiene, Pan American Sanitary Bureau, health section of the League of Nations, and other sources. The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

[C indicates cases; D, deaths; P, present]

Place	July 22- Aug. 24, 1929	Aug. 25- Sept. 21, 1929	Sept. 22- Oct. 18, 1929	Oct. 19- Nov. 16, 1929	Week ended—										
					November, 1929		December, 1929				January, 1930				
					23	30	7	14	21	28	4	11	18	25	
China:															
Amoy	1	1													
Canton	5	1													
	3	1													
Hankow															
Manchuria—															
Kwantung—Dairen	1		4	2											
Newchwang															
Nanking		1		P											
Shanghai	1,305	984	35												
	68	69	11												
Swatow	12	37	22	12											
Tientsin			P												
Chosen: Chemulpo		P													
India	41,090	28,896	16,354	17,340	4,325	5,297	4,937								
	24,005	15,557	10,051	10,680	2,458	3,158	2,941								
Bassett	6														
Bombay	2		1												
	1														
Calcutta	170	135	160	252	85	55	60	65	40	38	15	45	44		
Karachi	106	59	70	129	45	29	40	28	28	27	9	26	28		
Madras	10	11													
						1	1	1							
Nagapatam				3											
Rangoon	1		1	2	1						1				
	1		1	2	2						3				
				2	2						3				
				2	2						3				
				5	5						3				
				3	3						2				
Tuticortin			11	11	6						32				
				3	4						6				
				5	5						1				
				3	3						1				

[illegible]

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX--Continued

[C indicates cases; D, deaths; P, present]

[illegible]

TYPHUS FEVER

Place	Week ended—											
	November, 1929			December, 1929				January, 1930				
	23	30	7	14	21	28	4	11	18	25		
Algeria:												
Algiers.....	4	4	10	2								
Constantine Department.....	2		1	1		1		13				
Oran.....	2	3			2		1	1	1			
Bougie.....					1							
La Paz.....				13								
Pacajes Province—Calacoto Canton.....	19											
Brazil: Sao Paulo. ¹	5											
Bulgaria.....		14										
Sofia.....												
Chile: Valparaiso.....				1								
China: Tientsin.....	1			1								
China (see table below).....	1				1							
Czechoslovakia (see table below).....												
Egypt.....												
Alexandria.....		1	2									
Assuan.....												
Behdra Province.....	31	6	16	2				9				
Calo.....	4	2	4	1				7	6	8		
Dakableh.....		3										
Port Said.....		1										
Suez.....	2		1	1								
Greece (see table below).....												
Iraq: Bagdad Liwa.....								1				
Ireland (Irish Free State): Donegal County—Dunfanaghy.....												
Latvia (see table below).....												
Lithuania (see table below).....												
Mexico:												
Aguascalientes.....	1			3								
Mexico City, including municipalities in Federal District.....	11	14	9									
	1	6		1	2	4	1					

¹ Press reports show that 10 deaths from typhus fever have occurred in Sao Paulo, Brazil, from Nov. 3 to 30, 1929.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER—Continued

[C indicates cases; D, deaths; F, present]

Place	Week ended—															
	July, 1929				August, 1929				September, 1929				October, 1929			
	July 28-31	Aug. 1-4	Aug. 5-8	Aug. 9-12	Sept. 15-18	Sept. 19-22	Sept. 23-26	Sept. 27-30	Oct. 1-4	Oct. 5-8	Oct. 9-12	Oct. 13-16	Nov. 19-22	Nov. 23-26	Dec. 27-30	Jan. 1-4
Morocco.....	6	1	5	5	3	4	4	1	1	1	1	1	1	1	1	1
Palestine.....	23	8														
Persia.....																
Peru: Arequipa (see table below).																
Poland.....	48	7	4	26	31	62	17	16	3	3	4	1	1	1	1	1
Portugal: Oporto.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Rumania.....	9	9	39	39	25	19	8	11	3	3	4	2	2	2	2	2
Tunisia.....	1	1	4	4	5	2	1	1	1	1	1	1	1	1	1	1
Turkey (see table below).																
Union of South Africa:																
Cape Province.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Natal.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Orange Free State.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Transvaal.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Yugoslavia (see table below).																
Chosen: Seoul.....																
Czechoslovakia.....																
France.....																
Greece: Athens.....																
Latvia.....																
Lithuania.....																
D.....																

YELLOW FEVER

Since Aug. 1, 1929, the following cases of yellow fever have been reported: Nethereroy, Brazil, 1 case; Rio de Janeiro, Brazil, 2 cases; Monrovia, Liberia, 1 case. All occurred during the month of September, 1929.

X

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FEBRUARY 28 - - - 1930

SPECIAL ARTICLES

Case of Tularaemia Contracted from Coyote in New
Mexico

Weil-felix Reaction in Typhus and Rocky Mountain
Spotted Fever



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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

ASST. SURG. GEN. R. C. WILLIAMS, *Chief of Division*

THE PUBLIC HEALTH REPORTS are issued weekly by the United States Public Health Service through its Division of Sanitary Reports and Statistics, pursuant to acts of Congress approved February 15, 1893, and August 14, 1912.

They contain: (1) Current information of the prevalence and geographic distribution of preventable diseases in the United States in so far as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other communicable diseases throughout the world. (2) Articles relating to the cause, prevention, or control of disease. (3) Other pertinent information regarding sanitation and the conservation of the public health.

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PUBLIC HEALTH REPORTS

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NO. 9

REPORT OF CASE OF TULARAEMIA CONTRACTED FROM A COYOTE (*Canis lestes*) IN NEW MEXICO

By G. M. KUNKEL, *Assistant Surgeon, United States Public Health Service*

The case of tularaemia here reported, contracted in Lincoln County, N. Mex., seems to be of sufficient general interest to warrant the publication of a note regarding it. It is certainly of sufficient local importance to be called to the attention of the physicians of New Mexico. It more conclusively establishes the coyote as a definite source of infection for this disease. Only one previous case of tularaemia contracted from the coyote has been reported in the literature. That case, occurring in Montana, resulted from the bite of a coyote pup. From the research instituted at that time it was demonstrated that the coyote readily contracts the disease after the ingestion of infected material.¹

That tularaemia is not a new disease in the State of New Mexico is apparent from the 21 cases previously reported, as follows: Tularosa, 2; Alamogordo, 2; Carlsbad and vicinity, 10; Hanover, 1; Dexter, 1; Albuquerque, 1; and locations not mentioned, 4. All of these cases, so far as the writer is aware, have been transmitted from infected rabbits. The series of cases reported by Surg. T. B. H. Anderson, of the United States Public Health Service, in 1924, in coincidence with a fatal epizootic among rabbits in Eddy County, near Carlsbad, was certainly the most interesting and extensive outbreak in the State.

The case reported herein is the first in New Mexico in which the infection has been definitely proved to have been contracted from a coyote. Since this animal is frequently encountered in this State, being continuously hunted and trapped, it must be considered a real source of danger in the transmission of tularaemia to mankind. The physicians and the health authorities should know the rôle that it may play in this connection.

As tularaemia has now been proved to be transmissible from rabbits, coyotes, and possibly quails, it seems probable that cases of this disease occur without being reported. This is especially true in a

¹ See Public Health Reports for July 9, 1926.

State like New Mexico where all three of these animals have their natural habitat, and where they are frequently hunted for food, or as an enemy to man. These facts should stimulate physicians to be constantly on the lookout for this disease.

CASE REPORT

E. A., age 36, male, white, laborer, of Mexican origin. Family and past history unimportant.

Present illness: On October 29, 1929, patient cut his left index finger slightly with an ax. He then disposed of the carcass of an adult coyote which he had killed and skinned the evening before. As he wore no gloves he undoubtedly contaminated the cut at that time. There were absolutely no other animal contacts before or afterwards in this case. On October 31, 1929, he complained of pain in the left axilla and felt feverish and had aching body pains. An examination showed that the axillary glands were enlarged and tender. Later the cut on his finger became red, swollen, and painful. In a few days an inflamed papule developed which discharged pus and formed an ulcerated area. The axillary glands suppurated and upon incision yielded purulent matter. The blood serum collected on November 19, 1929, and tested at the Hygienic Laboratory agglutinated the *Bacterium tularensis* in a dilution of 1 : 1,280, thus confirming the diagnosis of tularaemia. The Wassermann test was negative. The disease furthermore ran the typical febrile course of the ulcero-glandular type of two months' duration. For the greater part of this time the patient was confined to bed. At the time of this report (January 8, 1930) he has apparently made a good recovery, but states that he does not feel as strong or as well as before he became sick.

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THE WEIL-FELIX REACTION IN ENDEMIC TYPHUS FEVER AND IN ROCKY MOUNTAIN SPOTTED FEVER

By R. R. SPENCER, *Surgeon*, and K. F. MAXCY, *Surgeon*, United States Public Health Service

Some years ago Kelly (1) tested the sera of eight patients with Rocky Mountain spotted fever against a strain of *proteus* X₁₉ for the Weil-Felix reaction with negative results. Owing to the limited observations on which this conclusion was based, it was thought advisable to repeat the work with a larger series of cases and with sera taken late in the disease, using several different strains of *proteus*.

In 1928 a preliminary communication by Kerlee and Spencer (2) reported that the sera from some patients with Rocky Mountain spotted fever showed a power to agglutinate the *proteus* group of

organisms, particularly the so-called specific "X strains" of Weil and Felix, which was far in excess of that encountered in controls and seemed to be definitely associated with the course of the disease, resembling closely the phenomenon thought to be specific for typhus fever. They further showed that the same type of agglutinins appeared in the blood of rabbits inoculated with the virus of Rocky Mountain spotted fever while the results with guinea pigs were invariably negative. These findings again were in accord with experience with the same species of animals experimentally inoculated with typhus virus.

While this work was in progress two publications appeared in foreign literature bearing upon the Weil-Felix reaction in animals inoculated with Rocky Mountain spotted fever virus. Kieczyński (3) had noted that the sera of rabbits injected with blood or brain virus of Rocky Mountain spotted fever did not as a rule contain agglutinins for *proteus* X₁₉ strains. In one instance, however, a low titer was obtained against an X₂ strain. On the other hand, he made the statement that white rats regularly gave a high titer Weil-Felix reaction with the *proteus* X₁₉ after inoculation with Rocky Mountain spotted fever virus. Positive reactions were also obtained in dogs and in a monkey. These experiments are not recorded in detail in his paper.

Munter (4) found the Weil-Felix reaction with *proteus* X₁₉ to be positive in rabbits inoculated with Rocky Mountain spotted fever virus, the serum titer against X₁₉ O type (specific typhus agglutinins) being slightly higher than that for the X₁₉ H type (*proteus* group agglutinins). Munter treated rabbits first with the virus of Rocky Mountain spotted fever and subsequently treated the same animals with typhus fever virus. This procedure was also reversed. From observations upon the changes in the titer of the serum of animals so treated he concluded that the mechanism involved in the production of agglutinins was not precisely identical in the two diseases. Sera from human cases were, of course, not available to the European investigators.

Owing to the fact that the Weil-Felix reaction has been regarded as highly specific for typhus and that this has been used by some writers as an argument in favor of a possible etiological relationship of the *proteus* bacillus to the disease, further studies were undertaken. Sera from 40 human cases of Rocky Mountain spotted fever were set up against the H and O variants of three strains of *proteus* X₁₉ and against two strains of *proteus vulgaris* and comparison was made with sera from 16 cases of endemic typhus occurring in the southeastern United States and from one case of typhus occurring in Adelaide, Australia,¹ with a view to elucidating any differences that might exist.

¹ We are deeply indebted to Dr. A. Felix for his kindness in sending us this serum.

MATERIALS AND TECHNIQUE

The X_{19} and the X_2 strains O and H were obtained from Dr. A. Felix, of the Lister Institute. We are indebted to Doctor Kingsbury, of the Institute of Medical Research, Kuala Lumpur, for the Kingsbury strain of X_{19} which Fletcher and Lesslar (5) found to give such interesting results with the typhuslike diseases encountered in the Federated Malay States. The two strains of *proteus vulgaris* came from the American Type Collection, No. 93 and No. 221.

The dissociated strains were checked by plating out on the surface of dry agar plates to ascertain the presence of discrete O type colonies and the spreading H type colonies from the same inoculum that was used to seed agar for the production of a large amount of antigen. In our experience the X_2 , O type, and the Kingsbury O type (KO), have remained constantly free from H individuals. On the other hand, upon several occasions we have noted that the X_{19} O type tended to revert and to show H colonies. One must admit therefore that in any suspension of organisms that are produced for agglutination purposes some H antigen may be present, even though in small and perhaps insignificant quantities.

No preservative was added to the antigens. They were kept free from contamination stored in a refrigerator at a temperature of approximately 4° C. They were carefully checked every few days for loss of antigenic power against a known positive serum. In our experience, however, formalinized suspensions (6) can be used with equal facility and accuracy provided the concentration of the preservative be kept at a minimum. In order to accomplish this, it is our custom to add 0.1 to 0.2 per cent neutral formaldehyde (U. S. P. 37 per cent) to heavy saline emulsions of the organism. When needed this emulsion is diluted 1:10 to 1:20 in order to obtain the proper turbidity before use in the reaction.

Suspensions were standardized to a turbidity of 500 according to the silica method recommended in "Standard Methods of Water Analysis," 1925. The tests were carried out in tubes by the macroscopic method with a total volume of 1 c. c., incubated at 37° C. for two hours and read after standing overnight in the ice box. The titer of a serum with a given antigen is here recorded as the highest dilution of that serum showing a 50 per cent agglutination or more, read without the aid of a magnifying lens.

RESULTS

In Table 1 are shown the results of titrating sera from 40 cases of Rocky Mountain spotted fever, in various stages of the disease, with antigens prepared from the several strains of *proteus bacilli*. In the first group of 10 cases, in which the day of the disease on which the specimen was taken was not recorded, one (No. 6) showed definite

agglutination of *proteus* X₁₉ (H and O) up to a dilution of 1:1,280, and of X₂ H up to 1:320, with lower titers for X₂ O, the Kingsbury and *proteus vulgaris* strains. Another serum (No. 10) showed only a doubtful (1:80) reaction with X₁₉ and Kingsbury (KO and KH), but a strongly positive one with X₂ H (1:1,280), X₂ O (1:640) and *proteus vulgaris* No. 526 (1:640).

TABLE 1.—Agglutination of *proteus* strains by sera from 40 cases of Rocky Mountain spotted fever

Group	Serum No.	Day of illness	X ₁₉ O	Agglutinin titer with <i>proteus</i> strains						
				X ₁₉ H	KO	KH	X ₂ O	X ₂ H	Vulgar- is No. 93	Vulgar- is No. 221
I.....	1	Not known.....	0	0	0	0	0	0	0	0
	2	do.....	0	0	20	20	0	0	0	0
	3	do.....	20	40	0	20	20	20	0	0
	4	do.....	20	10	20	0	0	0	0	0
	5	do.....	160	160	20	20	20	20	0	40
	6	do.....	1,280	1,280	80	80	160	320	0	160
	7	do.....	20	20	0	0	0	0	0	0
	8	do.....	0	0	0	0	0	0	0	0
	9	do.....	40	20	0	0	0	0	0	0
	10	do.....	80	80	80	50	640	1,280	0	640
II.....	11	Second day.....	0	0	0	0	0	0	0	0
	12	Third day.....	160	160	0	0	0	0	0	0
	13	do.....	0	0	0	0	0	0	0	0
	14	Fifth day.....	2,560	2,560	0	0	0	0	0	0
	15	Sixth day.....	0	0	20	20	0	0	0	0
	16	do.....	20	40	0	0	0	0	0	20
	17	do.....	20	20	0	0	0	0	0	0
	18	Seventh day.....	0	0	0	0	0	0	0	0
III.....	19	Eighth day.....	0	0	0	0	0	0	0	0
	20	Ninth day.....	40	40	0	20	40	40	20	0
	21	do.....	0	0	20	20	160	160	0	0
	22	Eleventh day.....	0	0	0	0	40	40	0	0
	23	Fourteenth day.....	40	40	160	160	0	0	0	0
	24	Fifteenth day.....	20	20	0	0	160	320	0	0
	25	do.....	0	0	0	0	0	0	0	0
	26	do.....	40	40	0	0	80	160	0	0
IV.....	27	Seventeenth day.....	320	320	40	0	80	80	0	0
	28	Twentieth day.....	640	640	0	0	0	0	0	80
	29	Twenty-first day.....	320	320	0	0	640	640	20	20
	30	Twenty-third day.....	2,560	1,280	0	40	320	640	0	40
	31	do.....	160	160	40	0	320	640	20	80
	32	do.....	1,280	1,280	0	0	0	0	0	0
	33	Twenty-eighth day.....	80	80	40	40	640	640	20	80
	34	Twenty-ninth day.....	0	0	0	160	320	0	0	0
	35	Thirty-first day.....	320	320	40	40	640	640	0	0
	36	Thirty-third day.....	80	0	0	0	0	0	0	0
	37	do.....	320	640	0	0	160	320	0	0
	38	Thirty-fifth day.....	10	40	40	40	0	0	0	20
	39	Sixty-sixth day.....	20	20	0	0	0	0	0	0
	40	Twenty-fourth year.....	0	0	0	0	0	0	0	0

In the group of eight cases where the serum was taken during the first week of the disease, one (No. 14) taken on the fifth day showed agglutination with *proteus* X₁₉ O and H up to 1:2,560, and one (No. 12) up to 1:160, with negligible titers against the other antigens.

In the eight cases where serum was taken during the second week, none showed a titer with X₁₉ which would be considered significant, but one (No. 23) agglutinated Kingsbury (O and H) up to 1:160, one (No. 21) agglutinated X₂ (O and H) up to 1:160, and one (No. 24) agglutinated X₂ O to 1:160 and X₂ H to 1:320, and No. 26 agglutinated X₂ O 1:80 and X₂ H 1:160.

Seven of the remaining 14 sera, taken during convalescence, showed a high titer agglutination with X_{10} , eight with X_2 , and one up to 1:160 with Kingsbury H. None had titers higher than 1:80 with the *proteus vulgaris* strains. It will be noted that the titer for X_2 sometimes exceeded that for X_{10} , although the latter strain is uniformly more sensitive to typhus sera, and in at least one instance (No. 34) the X_2 agglutination was positive when the test with X_{10} was entirely negative.

In Table 2 are shown the results of testing positive sera from cases of endemic typhus in the southeastern United States against the same *proteus* antigens used for the spotted fever sera. All of these typhus sera were selected originally on the basis of having agglutinated *proteus* X_{10} . They are not, therefore, a true random sample of sera taken in various stages of the disease as were the Rocky Mountain spotted fever sera. At the same time, it is clearly evident that in spite of high titers against *proteus* X_{10} , these sera show very little tendency to clump the other antigens. It is perhaps noteworthy, on the other hand, that the single serum from the endemic typhus of Australia did agglutinate the X_2 organisms, though in much lower titer than X_{10} .

TABLE 2.—Agglutination titer of 16 sera from human cases of endemic typhus fever against representative *proteus* strains

Serum No.	Agglutination titer with proteus strains							
	X_{10} O	X_{10} H	KO	KH	X_2 O	X_2 H	Vulgaris No. 93	Vulgaris No. 221
1.....	2,560	2,560	20	20	20	20	0	
2.....	1,280	1,280	20	0	20	40	0	
3.....	1,280	2,560	80	80	40	80	0	
4.....	160	160	20	0	0	0	0	
5.....	1,280	1,280	20	0	0	0	0	
6.....	320	640	0	0	0	0	0	
7.....	1,280	1,280	0	0	0	0	0	
8.....	1,280	1,280	0	0	0	0	0	
9.....	2,560	2,560	0	0	0	0	0	
10.....	2,560	2,560	20	0	0	20	0	
11.....	2,560	5,120	0	0	0	0	0	
12.....	320	640	0	0	0	0	0	
13.....	640	640	0	0	0	0	0	
14.....	640	1,280	0	0	0	0	0	
15.....	2,560	5,120	0	0	20	40	0	
16.....	1,280	1,280	0	0	0	0	0	
17 ¹	5,120	320	0	0	80	160	0	

¹ Case of typhus from Adelaide, Australia.

DISCUSSION

Additional evidence is brought by this series of observations as to the frequency with which a positive Weil-Felix reaction is encountered in the sera of human cases of Rocky Mountain spotted fever. Possibly it is not so constant a phenomenon in Rocky Mountain spotted fever as it appears to be in typhus, but it undoubtedly

occurs in a majority of the cases examined late in the disease or during convalescence. In neither Rocky Mountain spotted fever nor in endemic typhus was the titer consistently higher with the O type antigen of X_{19} , which, according to the work of Felix, is specific for typhus, than with the H type. The agglutinin absorption of the two types of antigens was not studied.

Granting the fact that a positive Weil-Felix reaction occurs in Rocky Mountain spotted fever, it is evident from the observations here recorded, as it was in Munter's experiments, that the mechanism involved is not exactly identical with that involved in typhus. Spotted fever virus produces agglutinins of broader affinities and of greater variability than those produced by typhus virus. The sera from cases of the former are apparently much more likely to react with the X_2 and Kingsbury strains and even with *proteus vulgaris* than are the sera from cases of endemic typhus. There is a qualitative difference in the character of the agglutinins. One can not say that the X_{19} is uniformly the more sensitive strain in Rocky Mountain spotted fever. It is evident that in routine work for the serological diagnosis of this latter disease the several strains of *proteus* bacilli should be used. On the contrary, our experience in this country with endemic typhus has led us to believe that only the X_{19} need be considered.

The fact that the Weil-Felix reaction may be positive in both diseases, even though qualitatively different, is extremely interesting. Although the two diseases are clinically similar in human beings, Rocky Mountain spotted fever and typhus are immunologically distinct. Neither virus affords any measurable degree of protection to recovered animals against a subsequent inoculation of the other. It must, therefore, be assumed that the etiologic agents are biologically distinct, even though closely related. This would, at the same time, suggest that typhus fever and Rocky Mountain spotted fever are more closely related than are typhus and that group of so-called typhuslike fevers which are characterized by a primary ulcer (tâche noire) at the point of entrance of the virus from a mite (or tick?) bite—the Tsutsugamushi disease (Japanese flood fever, kedani fever of Japan and the Federated Malay States (7), the pseudo-typhus of Deli (8, 9), the "fièvre exanthématique," of the Mediterranean area (10). Studies of this group of fevers have indicated that the Weil-Felix is nearly always negative and animals experimentally inoculated show manifestations different from those of typhus.

CONCLUSION

The Weil-Felix reaction is positive in a large proportion of cases of Rocky Mountain spotted fever. The mechanism of this reaction although similar is not exactly identical with that occurring in typhus fever. There is a qualitative difference.

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COURT DECISION RELATING TO PUBLIC HEALTH

City license not required of person holding State license for manufacture and sale of soft drinks at wholesale.—(Wisconsin Supreme Court; *E. L. Husting Co. v. City of Milwaukee et al.*, 228 N. W. 502; decided Jan. 7, 1930.) The plaintiff was engaged in the manufacture, bottling, and sale of soda-water beverages at wholesale in the city of Milwaukee, holding a license issued by the State dairy and food commissioner pursuant to statute. The city of Milwaukee passed an ordinance which required, among other things, that a manufacturer of soda-water beverages procure a license from the city, and the plaintiff brought an action to restrain the enforcement of such ordinance.

Chapter 96 of the 1929 laws provided that no person, firm, or corporation that possessed a license from the dairy and food commissioner, such as held by plaintiff, should be required to procure a license from the municipality under the State prohibition act then in force. The prohibition act gave municipal corporations the power to license those

who manufactured and dealt in nonintoxicating liquor. Chapter 129 of the 1929 laws repealed the prohibition law but gave to municipalities exactly the same power to license manufacturers and vendors of nonintoxicating liquor that was conferred by the prohibition act. The supreme court decided that the passage of chapter 129 did not evidence a legislative intent to change the exemption contained in chapter 96 and affirmed orders of the lower court restraining the enforcement of the ordinance and overruling the defendants' demurrer to the complaint.

DEATHS DURING WEEK ENDED FEBRUARY 15, 1930

Summary of information received by telegraph from industrial insurance companies for the week ended February 15, 1930, and corresponding week of 1929. (From the Weekly Health Index, February 19, 1930, issued by the Bureau of the Census, Department of Commerce)

	Week ended Feb. 15, 1930	Corresponding week, 1929
Policies in force.....	75, 472, 681	73, 242, 495
Number of death claims.....	13, 971	16, 424
Death claims per 1,000 policies in force, annual rate.....	9. 7	11. 7

Deaths from all causes in certain large cities of the United States during the week ended February 15, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index February 19, 1930, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Feb. 15, 1930		Annual death rate per 1,000, corre- sponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Feb. 15, 1930 ¹
	Total deaths	Death rate ¹		Week ended Feb. 15, 1930	Corre- sponding week, 1929	
Total (64 cities).....	8, 013	14. 1	15. 3	766	873	4 67
Akron.....	47			8	2	73
Albany.....	43	18. 6	19. 5	8	2	175
Atlanta.....	109	22. 3	20. 0	14	10	148
White.....	54			7	6	222
Colored.....	55	(²)	(²)	7	4	111
Baltimore.....	238	14. 9	17. 9	14	23	48
White.....	188			10	15	43
Colored.....	50	(²)	(²)	4	8	65
Birmingham.....	67	15. 7	19. 9	7	11	65
White.....	28			2	1	31
Colored.....	39	(²)	(²)	5	10	118
Boston.....	252	10. 4	10. 9	35	30	99
Bridgeport.....	42			5	7	85
Buffalo.....	142	13. 3	14. 7	20	15	89
Cambridge.....	37	15. 3	14. 1	6	1	111
Camden.....	29	11. 2	15. 0	7	1	127
Canton.....	22	9. 8	12. 9	4	2	99
Chicago.....	771	12. 7	13. 6	66	83	58
Cincinnati.....	127			4	15	24
Cleveland.....	216	11. 1	12. 6	17	29	51
Columbus.....	70	12. 2	17. 6	8	7	78
Dallas.....	65	15. 6	10. 4	9	10	
White.....	53			7	7	
Colored.....	12	(²)	(²)	2	3	
Dayton.....	43	12. 2	14. 1	2	7	30
Denver.....	77	13. 6	18. 4	7	11	73
Des Moines.....	31	10. 6	12. 4	0	8	0
Detroit.....	308	11. 6	13. 8	55	63	85
Duluth.....	20	8. 9	10. 7	3	1	81

Footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended February 15, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index, February 19, 1930, issued by the Bureau of the Census, Department of Commerce)—Continued

City	Week ended Feb. 15, 1930		Annual death rate per 1,000, corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Feb. 15, 1930 ¹
	Total deaths	Death rate ¹		Week ended Feb. 15 1930	Corresponding week, 1929	
El Paso.....	48	21.2	29.2	13	21	.....
Erie.....	28	.....	.....	3	4	64
Fall River ⁴	30	11.6	12.0	4	3	92
Flint.....	32	11.2	10.5	8	6	93
Fort Worth.....	37	11.3	11.3	4	1	.....
White.....	33	.....	.....	4	1	.....
Colored.....	4	(s)	(s)	0	0	.....
Grand Rapids.....	44	14.0	6.7	4	3	61
Houston.....	72	.....	.....	6	5	.....
White.....	44	.....	.....	3	4	.....
Colored.....	28	(s)	(s)	3	1	.....
Indianapolis.....	122	16.6	16.8	1	18	7
White.....	105	.....	.....	1	10	9
Colored.....	17	(s)	(s)	0	3	0
Jersey City.....	99	15.9	15.9	13	17	113
Kansas City, Kans.....	27	11.9	18.1	3	3	71
White.....	17	.....	.....	3	3	80
Colored.....	10	(s)	(s)	0	0	0
Kansas City, Mo.....	111	14.8	14.8	13	8	101
Knoxville.....	39	19.3	7.9	4	2	94
White.....	35	.....	.....	4	2	104
Colored.....	4	(s)	(s)	0	0	0
Los Angeles.....	265	.....	.....	19	19	58
Louisville.....	99	15.7	16.8	6	11	52
White.....	77	.....	.....	5	10	49
Colored.....	22	(s)	(s)	1	1	72
Lowell.....	29	.....	.....	3	1	71
Lynn.....	29	14.3	12.9	3	2	76
Memphis.....	101	27.7	22.8	5	12	60
White.....	50	.....	.....	2	7	37
Colored.....	51	(s)	(s)	3	5	101
Milwaukee.....	120	11.5	12.6	19	21	96
Minneapolis.....	91	10.4	12.8	9	8	58
Nashville.....	46	17.2	24.3	4	6	62
White.....	31	.....	.....	2	1	41
Colored.....	15	(s)	(s)	2	5	127
New Bedford.....	22	.....	.....	2	3	51
New Haven.....	39	10.8	14.7	2	4	39
New Orleans.....	181	22.0	20.6	20	11	116
White.....	103	.....	.....	5	5	44
Colored.....	78	(s)	(s)	15	6	252
New York.....	1,606	13.9	15.8	146	185	61
Bronx Borough.....	195	10.7	13.4	13	23	31
Brooklyn Borough.....	550	12.4	14.2	56	69	60
Manhattan Borough.....	631	18.8	21.2	59	69	97
Queens Borough.....	178	10.9	10.8	13	19	38
Richmond Borough.....	52	18.0	22.1	5	5	93
Newark, N. J.....	140	15.4	11.9	12	6	63
Oakland.....	59	11.2	14.8	4	7	48
Oklahoma City.....	45	.....	.....	3	5	59
Omaha.....	59	13.8	15.0	1	4	11
Paterson.....	41	14.8	13.8	2	3	35
Philadelphia.....	553	14.0	14.1	61	38	90
Pittsburgh.....	217	16.8	14.0	22	24	81
Providence.....	73	13.3	17.8	4	8	37
Richmond.....	60	16.1	16.6	2	4	30
White.....	37	.....	.....	1	2	22
Colored.....	23	(s)	(s)	1	2	44
Rochester.....	85	13.5	14.0	4	7	35
St. Louis.....	265	16.3	16.4	11	18	86
St. Paul.....	56	.....	.....	3	4	30
Salt Lake City ⁴	38	14.4	15.5	3	8	47
San Antonio.....	79	18.9	20.8	7	20	.....
San Diego.....	49	.....	.....	2	8	42
San Francisco.....	156	13.9	15.8	4	8	27
Schenectady.....	17	9.5	15.6	0	5	0
Seattle.....	70	9.5	12.1	4	5	40
Somerville.....	29	14.7	13.2	2	1	65
Spokane.....	35	16.7	16.7	2	1	52
Springfield, Mass.....	44	15.3	12.2	4	6	63

Footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended February 15, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index, February 19, 1930, issued by the Bureau of the Census, Department of Commerce)—Continued

City	Week ended Feb. 15, 1930		Annual death rate per 1,000, corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Feb. 15, 1930 ¹
	Total deaths	Death rate ¹		Week ended Feb. 15, 1930	Corresponding week, 1929	
Syracuse.....	51	13.3	14.7	5	6	62
Toledo.....	84	14.0	16.1	5	12	46
Trenton.....	54	20.3	15.8	9	2	168
Utica.....	21	10.5	21.5	4	2	114
Washington, D. C.....	149	14.1	17.5	11	15	64
White.....	91			5	7	43
Colored.....	58	(²)	(²)	6	8	103
Waterbury.....	23			3	5	77
Wilmington, Del.....	48	19.5	13.8	4	4	90
Worcester.....	75	19.8	18.7	10	9	130
Yonkers.....	30	12.9	6.4	3	2	72
Youngstown.....	40	12.0	9.3	3	3	47

¹ Annual rate per 1,000 population.

² Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.

³ Data for 71 cities.

⁴ Deaths for week ended Friday.

⁵ In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended February 15, 1930, and February 16, 1929

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended February 15, 1930, and February 16, 1929

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Feb 15, 1930 ¹	Week ended Feb 16, 1929	Week ended Feb 15, 1930	Week ended Feb. 16, 1929	Week ended Feb 15, 1930	Week ended Feb 16, 1929	Week ended Feb. 15, 1930	Week ended Feb. 16, 1929
New England States:								
Maine.....	2	2	12	188	46	353	0	0
New Hampshire.....	1	1	4	65	22	29	0	0
Vermont.....	3	---	---	19	7	18	0	0
Massachusetts.....	71	96	15	405	510	378	5	1
Rhode Island.....	15	6	---	33	3	74	0	0
Connecticut.....	25	30	6	373	20	328	0	2
Middle Atlantic States:								
New York.....	120	214	142	1243	557	817	18	45
New Jersey.....	117	118	22	71	302	220	4	5
Pennsylvania.....	158	158	---	---	783	2,012	8	8
East North Central States:								
Ohio.....	78	104	36	367	700	1,311	11	7
Indiana.....	31	25	---	119	65	358	14	0
Illinois.....	158	139	44	137	627	692	11	13
Michigan.....	66	101	7	25	440	413	32	20
Wisconsin.....	31	16	66	130	1,184	460	8	3
West North Central States:								
Minnesota.....	11	27	4	6	161	285	4	3
Iowa.....	11	8	1	---	406	---	2	5
Missouri.....	37	51	38	113	76	284	21	18
North Dakota.....	6	0	---	50	46	18	1	8
South Dakota.....	3	4	---	2	119	47	2	0
Nebraska.....	19	25	23	63	723	24	3	3
Kansas.....	19	15	5	34	342	65	6	3
South Atlantic States:								
Delaware.....	---	---	---	3	6	23	0	0
Maryland.....	25	31	54	640	11	127	0	1
District of Columbia.....	18	10	1	25	9	3	0	0
Virginia.....	---	---	---	---	---	---	1	---
West Virginia.....	12	15	12	211	99	130	4	1
North Carolina.....	36	28	37	---	15	98	0	0
South Carolina.....	16	11	1,061	922	---	2	8	0
Georgia.....	16	7	234	203	335	53	16	0
Florida.....	13	9	3	39	102	10	3	1

¹ New York City only.

¹ Week ended Friday.

*Cases of certain communicable diseases reported by telegraph by State health officers
for weeks ended February 15, 1930, and February 16, 1929—Continued*

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Feb. 15, 1930	Week ended Feb. 16, 1929	Week ended Feb. 15, 1930	Week ended Feb. 16, 1929	Week ended Feb. 15, 1930	Week ended Feb. 16, 1929	Week ended Feb. 15, 1930	Week ended Feb. 16, 1929
East South Central States:								
Kentucky.....		9		30	132	23	1	0
Tennessee.....	3	17	163	1,629	202	4	21	0
Alabama.....	43	24	176	956	108	160	3	4
Mississippi.....	21	9					26	2
West South Central States:								
Arkansas.....	5	23	206	1,175	5	68	4	0
Louisiana.....	16	24	27	72	40	42	5	10
Oklahoma.....	18	29	128	712	84	5	4	2
Texas.....	41	36	55	368	120	51	2	6
Mountain States:								
Montana.....	1	3		4	21	133	1	2
Idaho.....	2	1		4	81	13	2	9
Wyoming.....	1	4			33	30	0	0
Colorado.....	8	15		27	65	8	0	7
New Mexico.....	6	5		1	56	9	3	1
Arizona.....	7	7	12		5	27	5	19
Utah.....	2		1	4	232		3	16
Pacific States:								
Washington.....	8	5	4	42	209	96	7	2
Oregon.....	9	6	106	94	12	140	2	6
California.....	70	61	72	244	954	58	0	16

Division and State	Polomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Feb. 15, 1930	Week ended Feb. 16, 1929	Week ended Feb. 15, 1930	Week ended Feb. 16, 1929	Week ended Feb. 15, 1930	Week ended Feb. 16, 1929	Week ended Feb. 15, 1930	Week ended Feb. 16, 1929
New England States:								
Maine.....	0	0	45	35	0	4	0	2
New Hampshire.....	0	0	22	5	0	0	0	0
Vermont.....	0	0	7	7	4	1	0	0
Massachusetts.....	0	0	302	267	0	0	5	2
Rhode Island.....	0	0	31	35	0	0	0	0
Connecticut.....	1	0	127	65	0	0	1	0
Middle Atlantic States:								
New York.....	3	1	478	496	7	0	31	12
New Jersey.....	0	0	275	159	0	0	3	2
Pennsylvania.....	0	4	487	173	3	0	13	12
East North Central States:								
Ohio.....	0	1	379	432	170	48	7	8
Indiana.....	0	0	183	191	173	40	3	1
Illinois.....	1	0	607	511	147	149	8	3
Michigan.....	0	1	335	478	93	43	3	2
Wisconsin.....	1	0	140	136	9	9	4	3
West North Central States:								
Minnesota.....	0	0	126	173	6	5	2	2
Iowa.....	0	1	107	176	67	31	0	1
Missouri.....	0	0	117	91	95	36	5	2
North Dakota.....	1	0	41	39	27	2	0	1
South Dakota.....	0	0	32	24	129	47	1	0
Nebraska.....	0	0	50	140	74	55	1	1
Kansas.....	1	0	120	175	72	46	0	1
South Atlantic States:								
Delaware.....	0	0	16	5	0	0	0	0
Maryland.....	1	0	95	72	0	0	5	6
District of Columbia.....	1	0	22	28	0	0	0	0
Virginia.....	1							
West Virginia.....	0	0	57	19	56	15	7	2
North Carolina.....	2	0	62	53	14	13	7	2
South Carolina.....	0	4	6	3	2	3	1	8
Georgia.....	0	0	34	15	0	1	2	3
Florida.....	0	0	9	14	4	3	4	1

¹ Week ended Friday.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended February 15, 1930, and February 16, 1929—Continued

Division and State	Pollomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Feb. 15, 1930	Week ended Feb. 16, 1929	Week ended Feb. 15, 1930	Week ended Feb. 16, 1929	Week ended Feb. 15, 1930	Week ended Feb. 16, 1929	Week ended Feb. 15, 1930	Week ended Feb. 16, 1929
East South Central States:								
Kentucky.....	0	0	16	108	15	16	2	1
Tennessee.....	2	0	32	82	15	3	3	0
Alabama.....	2	0	25	0	0	10	10	1
Mississippi.....	1	0	16	7	1	0	1	4
West South Central States:								
Arkansas.....	1	0	32	30	27	6	5	6
Louisiana.....	0	0	14	36	9	4	11	6
Oklahoma.....	1	0	61	42	102	50	13	4
Texas.....	0	1	57	59	43	89	1	2
Mountain States:								
Montana.....	0	0	43	32	18	8	0	0
Idaho.....	0	0	10	9	17	20	0	1
Wyoming.....	0	0	3	5	7	4	0	0
Colorado.....	0	0	23	23	34	55	0	1
New Mexico.....	2	0	19	8	1	2	2	3
Arizona.....	0	1	10	11	19	7	6	0
Utah.....	0	0	8	14	2	4	0	0
Pacific States:								
Washington.....	1	0	73	48	59	35	4	3
Oregon.....	0	0	31	33	16	56	2	0
California.....	1	3	271	368	73	59	11	9

* Figures for 1930 are exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week

State	Menin- gococ- cus menin- gitis	Diph- theria	Influ- enza	Ma- laria	Mea- sles	Pel- lagra	Pollo- mye- litis	Scarlet fever	Small- pox	Ty- phoid fever
<i>January, 1930</i>										
Arizona.....	57	44	140	1	13		0	71	146	7
Florida.....		51	23	24	116	3	2	81	4	12
Indiana.....	88	125	128		312		1	772	889	8
Iowa.....	11	55	9				0	378	551	5
Maine.....		13	25	1	8		0	221	0	5
Vermont.....		9			82		0	75	53	0
Wyoming.....	3	6	13		47		0	29	49	1

<i>January, 1930</i>		Lethargic encephalitis:	
Chicken pox:	Cases	Wyoming.....	Cases 1
Arizona.....	167	Mumps:	
Florida.....	207	Arizona.....	293
Indiana.....	484	Florida.....	266
Maine.....	271	Indiana.....	8
Vermont.....	272	Maine.....	297
Wyoming.....	47	Vermont.....	27
Conjunctivitis:		Wyoming.....	42
Maine.....	3	Ophthalmia neonatorum:	
Dysentery:		Indiana.....	1
Arizona.....	2	Paratyphoid fever:	
Florida.....	1	Maine.....	6
Glandular fever:		Rabies in man:	
Wyoming.....	2	Florida.....	1
Impetigo contagiosa:		Septic sore throat:	
Wyoming.....	7	Maine.....	1

	Cases		Cases
Tetanus:		Vincent's angina:	
Maine.....	1	Maine.....	4
Trachoma:		Wyoming.....	1
Arizona.....	279	Whooping cough:	
Tularaemia:		Arizona.....	51
Indiana.....	2	Florida.....	39
Typhus fever:		Indiana.....	100
Florida.....	4	Maine.....	153
Undulant fever:		Vermont.....	69
Arizona.....	1	Wyoming.....	8
Florida.....	2		
Indiana.....	1		
Iowa.....	13		

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 95 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 31,375,000. The estimated population of the 88 cities reporting deaths is more than 29,780,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended February 8, 1930, and February 9, 1929

	1930	1929	Estimated expectancy
<i>Cases reported</i>			
Diphtheria:			
46 States.....	1,410	1,572	
95 cities.....	573	700	992
Measles:			
43 States.....	8,474	7,577	
95 cities.....	1,978	1,277	
Meningococcus meningitis:			
47 States.....	264	228	
95 cities.....	114	109	
Poliomyelitis, 46 States.....	19	14	
Scarlet fever:			
46 States.....	5,559	4,551	
95 cities.....	1,967	1,405	1,570
Smallpox:			
46 States.....	1,937	946	
95 cities.....	180	33	69
Typhoid fever:			
46 States.....	163	117	
95 cities.....	27	30	35
<i>Deaths reported</i>			
Influenza and pneumonia, 88 cities.....	1,087	1,613	
Smallpox: 88 cities.....	0	0	

City reports for week ended February 8, 1930

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reason the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week ended during nonepidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1921 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Chicken pox, cases re- ported	Diphtheria		Influenza		Measles, cases re- ported	Mumps, cases re- ported	Pneu- monia, deaths reported
		Cases es- timated expect- ancy	Cases re- ported	Cases re- ported	Deaths reported			
NEW ENGLAND								
Maine:								
Portland		1						
New Hampshire:								
Concord	0	0	0		0	0	0	1
Manchester	0	1	0		0	0	0	3
Nashua	0	0	1		0	0	0	0
Vermont:								
Barre	13	0	0		0	4	1	0
Burlington	5	1	0		0	0	1	0
Massachusetts:								
Boston	62	46	27	1	0	74	69	12
Fall River	8	4	6		0	0	1	6
Springfield	8	4	5		0	3	6	3
Worcester	13	4	1		0	48	0	2
Rhode Island:								
Pawtucket	8	1	1		0	0	1	1
Providence	3	10	6		0	0	1	9
Connecticut:								
Bridgeport	3	6	1	2	2	0	0	9
Hartford	11	8	1		0	0	0	13
New Haven	64	1	1		0	4	13	10
MIDDLE ATLANTIC								
New York								
Buffalo	17	14	7		1	0	8	30
New York	219	226	104	53	13	123	146	221
Rochester	18	10	3		0	9	5	3
Syracuse	28	4	0		0	0	55	9
New Jersey								
Camden	6	7	9		0	1	1	7
Newark	70	18	32	9	0	108	5	16
Trenton	4	3	0	1	0	21	0	3
Pennsylvania:								
Philadelphia	93	73	30	7	5	42	44	68
Pittsburgh	40	23	17		4	53	12	38
Reading	5	2	0		0	1	1	3
Scranton	3	5	2		0	1	0	0
EAST NORTH CENTRAL								
Ohio:								
Cincinnati	7	9	5		3	0	1	16
Cleveland	94	36	16	5	5	4	17	21
Columbus	9	4	2	1	0	7	1	10
Toledo	36	7	4	2	2	219	14	8
Indiana:								
Fort Wayne	1	3	1		1	0	0	0
Indianapolis	21	8	4		0	5	5	13
South Bend	1	2	0		0	1	0	2
Terre Haute	8	1	0		0	0	0	3
Illinois:								
Chicago	116	101	97	14	2	16	33	86
Springfield	5	1	0	11	1	0	0	1

City reports for week ended February 8, 1930—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST NORTH CENTRAL—continued								
Michigan:								
Detroit.....	88	53	34	7	4	175	64	46
Flint.....	22	4	1		0	1	0	6
Grand Rapids.....	4	3	0		2	1	0	1
Wisconsin:								
Kenosha.....	5	2	0		0	3	0	0
Madison.....	12	1	0		0	79	4	0
Milwaukee.....	161	20	4	2	2	3	34	13
Racine.....	9	3	1		0	0	0	0
Superior.....	0	1	0		0	59	0	2
WEST NORTH CENTRAL								
Minnesota:								
Duluth.....	3	1	0		2	38	0	3
Minneapolis.....	54	19	2		1	54	57	5
St. Paul.....	26	10	0		1	18	12	8
Iowa:								
Davenport.....	2	1	0			0	0	
Des Moines.....	3	2	1			45	4	
Sioux City.....	13	1	0			4	0	
Waterloo.....	17	0	0			142	0	
Missouri:								
Kansas City.....		7						
St. Joseph.....	2	1	0		0	2	0	5
St. Louis.....	17	47	27			4	8	
North Dakota:								
Fargo.....	5	0	1		0	0	14	0
Grand Forks.....	6	1	0			0	0	
South Dakota:								
Aberdeen.....	11	0	0			1	3	
Sioux Falls.....	0	1	0			11	0	
Nebraska:								
Omaha.....	10	4	8		0	31	1	9
Kansas:								
Topeka.....	20	2	0	3	1	16	10	2
Wichita.....	19	4	4		0	3	0	6
SOUTH ATLANTIC								
Delaware:								
Wilmington.....	2	2	2		0	1	0	8
Maryland:								
Baltimore.....	81	30	9	31	2	3	5	34
Cumberland.....	0	1	0	2	0	0	0	0
Frederick.....	0	0	0		0	0	0	1
District of Columbia:								
Washington.....	29	22	12	1	0	6	0	14
Virginia:								
Lynchburg.....	7	1	1		0	103	18	1
Norfolk.....	14	1	4		0	1	6	5
Richmond.....	1	3	6		1	0	0	0
Roanoke.....	2	1	2		0	11	1	3
West Virginia:								
Charleston.....	26	1	0	1	0	1	0	1
Wheeling.....	2	1	0		0	0	0	2
North Carolina:								
Raleigh.....	23	1	1		0	0	0	0
Wilmington.....	1	0	0		0	0	0	1
Winston-Salem.....	9	1	2	3	1	0	3	7
South Carolina:								
Charleston.....	0	0	0	61	1	0	4	3
Columbia.....	6	0	2		0	0	2	6
Georgia:								
Atlanta.....	9	2	0	31	1	3	13	13
Brunswick.....	0	0	0		0	0	1	0
Savannah.....	0	1	0	6	0	0	0	6
Florida:								
Miami.....	1	2	4		0	2	1	1
St. Petersburg.....		0			0			0
Tampa.....	2	2	1		0	6	4	2

City reports for week ended February 8, 1930—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST SOUTH CENTRAL								
Kentucky:								
Covington.....	0	1	1	-----	0	0	0	4
Tennessee:								
Memphis.....	8	4	3	-----	1	2	15	9
Nashville.....	2	1	2	-----	2	1	0	9
Alabama:								
Birmingham.....	9	3	4	21	1	3	7	6
Mobile.....	1	0	2	2	1	3	0	4
Montgomery.....	4	1	0	-----	-----	3	2	-----
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith.....	1	1	0	-----	-----	0	0	-----
Little Rock.....	3	1	0	-----	0	0	3	7
Louisiana:								
New Orleans.....	0	13	15	15	9	66	0	22
Shreveport.....	3	0	2	-----	0	1	2	4
Oklahoma:								
Oklahoma City.....	1	2	1	16	1	3	4	4
Tulsa.....	29	2	3	-----	-----	96	0	-----
Texas:								
Dallas.....	14	6	6	2	0	110	2	21
Fort Worth.....	16	6	2	-----	3	0	0	13
Galveston.....	0	1	1	-----	0	0	0	3
Houston.....	1	6	16	-----	0	0	1	8
San Antonio.....	0	3	5	1	5	0	1	11
MOUNTAIN								
Montana:								
Billings.....	0	0	0	-----	0	0	14	2
Great Falls.....	1	1	0	-----	1	3	21	3
Helena.....	0	0	1	-----	0	0	36	0
Missoula.....	0	0	0	-----	0	0	2	2
Idaho:								
Boise.....	1	0	0	-----	0	0	1	0
Colorado:								
Denver.....	-----	13	-----	-----	-----	-----	-----	-----
Pueblo.....	9	2	0	-----	0	1	24	3
New Mexico:								
Albuquerque.....	2	0	1	-----	0	2	9	2
Arizona:								
Phoenix.....	5	0	3	-----	0	0	1	2
Utah:								
Salt Lake City.....	20	3	1	-----	0	24	7	5
Nevada:								
Reno.....	0	0	0	-----	0	0	0	1
PACIFIC								
Washington:								
Seattle.....	48	5	0	-----	-----	13	46	-----
Spokane.....	9	3	0	-----	-----	0	0	-----
Tacoma.....	20	2	1	-----	0	2	7	5
Oregon:								
Portland.....	13	9	6	12	1	9	18	16
Salem.....	5	0	0	-----	0	0	4	0
California:								
Los Angeles.....	99	43	10	34	3	48	44	31
Sacramento.....	4	3	0	-----	0	0	27	9
San Francisco.....	45	17	1	5	0	445	73	7

City reports for week ended February 8, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culosis, deaths reported	Typhoid fever			Whoop- ing cough, cases re-ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
NEW ENGLAND											
Maine:											
Portland	4		0				0				
New Hampshire:											
Concord	0	2	0	0	0	0	0	0	0	0	11
Manchester	3	0	0	0	0	2	0	0	0	0	20
Nashua	1	2	0	0	0	0	0	0	0	0	
Vermont:											
Barre	0	0	0	1	0	0	0	0	0	0	1
Burlington	1	0	0	0	0	0	0	0	0	1	5
Massachusetts:											
Boston	83	106	0	0	0	17	1	0	0	66	232
Fall River	4	2	0	0	0	3	0	0	0	15	32
Springfield	9	11	0	0	0	1	0	0	0	5	42
Worcester	10	9	0	0	0	2	0	0	0	5	47
Rhode Island:											
Pawtucket	2	1	0	0	0	0	0	0	0	3	15
Providence	13	24	0	0	0	4	0	0	0	20	75
Connecticut:											
Bridgeport	13	33	0	0	0	1	0	0	0	1	53
Hartford	6	9	0	0	0	0	1	0	2	6	55
New Haven	11	12	0	0	0	2	0	0	0	16	62
MIDDLE ATLANTIC											
New York:											
Buffalo	31	24	40	0	0	8	1	0	0	0	160
New York	331	258	0	0	0	92	7	4	0	52	1,655
Rochester	11	11	0	0	0	4	0	0	0	3	67
Syracuse	14	26	0	0	0	1	0	0	0	31	53
New Jersey:											
Camden	7	2	0	0	0	2	0	1	1	1	39
Newark	35	44	0	0	0	3	0	0	0	38	130
Trenton	7	24	0	0	0	2	0	1	0	8	38
Pennsylvania:											
Philadelphia	103	141	0	0	0	39	2	0	0	27	508
Pittsburgh	42	39	0	0	0	11	1	0	0	45	215
Reading	6	4	0	0	0	0	0	0	0	23	31
Scranton	4	4	0	0	0	0	0	0	0	0	
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	21	15	1	4	0	7	0	1	1	8	177
Cleveland	48	51	0	1	0	16	1	0	0	87	227
Columbus	11	15	1	3	0	4	0	0	0	0	84
Toledo	14	23	1	12	0	7	0	0	0	5	83
Indiana:											
Fort Wayne	5	8	0	15	0	0	0	4	0	1	27
Indianapolis	13	19	7	8	0	5	1	0	0	10	
South Bend	3	5	0	1	0	0	0	0	0	0	
Terre Haute	4	6	1	0	0	0	0	0	0	0	22
Illinois:											
Chicago	139	345	3	6	0	47	3	2	0	109	788
Springfield	4	0	0	1	0	0	0	0	0	2	14
Michigan:											
Detroit	110	140	3	3	0	27	1	1	0	61	351
Flint	13	25	1	11	0	2	0	0	0	5	31
Grand Rapids	13	19	1	0	0	0	0	0	0	4	27
Wisconsin:											
Kenosha	2	3	0	0	0	0	0	0	0	11	5
Madison	4	3	0	2	0	0	0	0	0	3	
Milwaukee	39	28	1	2	0	4	0	0	0	49	127
Racine	6	7	0	0	0	0	0	0	0	7	12
Superior	4	3	0	0	0	0	0	0	0	4	8
WEST NORTH CENTRAL											
Minnesota:											
Duluth	10	8	0	0	0	2	0	0	0	7	23
Minneapolis	61	16	4	0	0	2	0	0	0	14	102
St. Paul	36	20	1	0	0	3	1	0	0	17	64

City reports for week ended February 8, 1930—Continued

Division, State, and city	Scarlet fever		Cases, esti- mated expect- ancy	Smallpox		Tuber- culo- sis, deaths re- ported	Cases, esti- mated expect- ancy	Typhoid fever		Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported		Cases re- ported	Deaths re- ported			Cases re- ported	Deaths re- ported		
WEST NORTH CENTRAL—continued.											
Iowa:											
Davenport.....	2	0	1	7			0	0		0	
Des Moines.....	10	13	2	9			0	0		0	48
Sioux City.....	2	9	0	2			0	0		1	
Waterloo.....	3	2	0	18			0	0		1	
Missouri:											
Kansas City.....	16		3				1				
St. Joseph.....	3	4	0	2	0	2	0	0	0		36
St. Louis.....	48	40	2	8	0	12	1	1	0	9	247
North Dakota:											
Fargo.....	2	8	0	0	0	1	0	0	0	13	6
Grand Forks.....	1	6	1	5			0	0		0	
South Dakota:											
Aberdeen.....	2	0	0	0			0	1		0	
Sioux Falls.....	3	1	0	10			0	0		0	8
Nebraska:											
Omaha.....	6	14	2	1	0	2	0	0	0	1	48
Kansas:											
Topeka.....	2	6	0	0	0	0	0	0	0	5	19
Wichita.....	6	22	0	0	0	0	0	0	0	4	38
SOUTH ATLANTIC											
Delaware:											
Wilmington.....	5	9	0	0	0	0	0	0	1	0	28
Maryland:											
Baltimore.....	36	50	0	0	0	15	1	1	1	20	250
Cumberland.....	1	0	0	0	0	0	0	0	0	0	6
Frederick.....	2	1	0	0	0	0	0	0	0	0	5
District of Col.:											
Washington.....	28	12	0	0	0	12	1	4	0	5	145
Virginia:											
Lynchburg.....	0	0	0	0	0	0	0	0	0	1	10
Norfolk.....	2	7	0	0	0	1	0	0	0	2	
Richmond.....	4	3	0	0	0	1	0	0	0	0	55
Roanoke.....	1	1	0	0	0	0	0	0	0	2	17
West Virginia:											
Charleston.....	2	2	1	2	0	1	0	1	0	20	16
Wheeling.....	2	0	0	0	0	0	1	0	0	12	17
North Carolina:											
Raleigh.....	1	1	0	0	0	0	0	0	0	1	12
Wilmington.....	0	2	1	0	0	3	0	0	0	2	14
Winston-Salem.....	2	3	1	0	0	1	0	0	0	3	19
South Carolina:											
Charleston.....	1	3	0	0	0	0	0	0	0	3	26
Columbia.....	0	0	0	0	0	0	0	0	0	10	28
Georgia:											
Atlanta.....	5	15	4	0	0	0	0	0	0	3	94
Brunswick.....	0	0	0	0	0	1	0	0	0	0	3
Savannah.....	0	4	0	0	0	6	0	0	0	0	35
Florida:											
Miami.....	1	4	0	0	0	2	0	0	0	2	40
St. Petersburg.....	0		0	0	0	1	0		0	14	
Tampa.....	1	5	0	0	0	3	1	0	0	0	37
EAST SOUTH CENTRAL											
Kentucky:											
Covington.....	2	5	0	0	0	1	0	0	0	0	18
Tennessee:											
Memphis.....	7	11	1	0	0	14	1	1	0	5	93
Nashville.....	3	4	1	0	0	3	0	1	0	0	46
Alabama:											
Birmingham.....	3	4	3	0	0	7	0	1	0	0	85
Mobile.....	0	2	1	0	0	2	0	0	0	0	21
Montgomery.....	0	6	0	0			0	0		2	
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith.....	1	2	0	0			0	0		0	
Little Rock.....	2	0	0	1	0	1	1	0	0	0	
Louisiana:											
New Orleans.....	7	16	0	0	0	15	2	2	1	0	171
Shreveport.....	1	2	0	1	0	1	0	0	0	0	29

City reports for week ended February 8, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culosis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
WEST SOUTH CENTRAL—continued											
Oklahoma:											
Oklahoma City	3	8	2	10	0	0	0	1	0	0	33
Tulsa	2	4	1	14			0	0		19	
Texas:											
Dallas	5	8	2	0	0	3	1	0	0	0	74
Fort Worth	0	5	1	0	0	3	1	0	0	0	44
Galveston	1	1	0	0	0	1	1	0	0	0	10
Houston	2	7	2	8	0	4	0	0	0	0	73
San Antonio	3	1	0	17	0	8	0	0	0	0	75
MOUNTAIN											
Montana:											
Billings	0	2	0	0	0	0	0	0	0	0	5
Great Falls	2	14	0	0	0	0	0	0	0	0	11
Helena	0	0	0	0	0	0	0	0	0	2	7
Missoula	1	1	1	2	0	0	0	0	0	0	7
Idaho											
Boise	2	0	1	0	0	2	0	0	0	0	5
Colorado:											
Denver	12		1				0				
Pueblo	2	0	1	0	0	0	0	0	0	0	11
New Mexico											
Albuquerque	1	0	0	0	0	5	0	0	0	0	17
Arizona											
Phoenix	0	0	0	20	0	4	0	0	0	0	10
Utah											
Salt Lake City	3	5	2	0	0	0	0	0	0	32	34
Nevada:											
Reno	0	2	0	0	0	0	0	0	0	0	8
PACIFIC											
Washington:											
Seattle	10	15	3	5			0	1		14	
Spokane	5	4	8	39			0	0		9	
Tacoma	2	8	4	6	0	0	0	0	0	5	31
Oregon:											
Portland	7	4	14	3	0	0	0	0	0	3	94
Salem	0	1	1	0	0	0	0	0	0	13	
California:											
Los Angeles	42	95	3	6	0	21	2	0	0	28	307
Sacramento	2	6	1	5	0	2	0	0	0	1	35
San Francisco	20	15	1	1	0	13	1	0	0	2	189

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Massachusetts:									
Boston	1	0	0	0	0	0	0	0	0
Connecticut:									
Hartford	0	0	0	1	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
New York	15	5	0	1	0	0	1	2	0
Rochester	0	1	0	0	0	0	0	0	0
New Jersey:									
Camden	1	0	0	0	0	0	0	0	0
Newark	1	0	0	0	0	0	0	2	0
Pennsylvania:									
Philadelphia	3	2	0	0	0	0	0	0	0
Pittsburgh	6	2	0	0	0	0	0	0	0
Scranton	1	0	0	0	0	0	0	0	0

City reports for week ended February 8, 1930—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
EAST NORTH CENTRAL									
Ohio:									
Cincinnati.....	0	0	0	0	0	0	0	1	0
Cleveland.....	1	0	0	0	0	0	0	0	0
Toledo.....	2	1	0	0	0	0	0	0	0
Indiana:									
Indianapolis.....	14	4	0	0	0	0	0	0	0
South Bend.....	1	0	0	0	0	0	0	0	0
Illinois:									
Chicago.....	8	5	2	1	0	0	0	0	0
Michigan:									
Detroit.....	23	14	2	2	0	0	0	0	0
Wisconsin:									
Milwaukee.....	2	1	0	0	0	0	1	1	0
WEST NORTH CENTRAL									
Minnesota:									
Duluth.....	1	0	0	0	0	0	0	0	0
Missouri:									
St. Louis.....	10	7	0	0	0	0	0	0	0
Nebraska:									
Omaha.....	1	0	0	0	0	0	0	0	0
SOUTH ATLANTIC									
Maryland:									
Baltimore.....	2	1	0	0	0	0	0	0	0
Virginia:									
Norfolk.....	0	0	0	0	0	1	0	0	0
South Carolina:									
Charleston.....	0	0	0	0	2	2	0	0	0
Columbia.....	3	0	0	0	0	0	0	0	0
Georgia:									
Atlanta.....	1	2	0	0	0	0	0	0	0
Savannah.....	0	0	0	0	1	0	0	0	0
Florida:									
Miami.....	0	0	0	0	0	1	0	0	0
Tampa ¹	0	0	0	0	0	1	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis.....	5	0	0	0	0	1	0	0	0
Alabama:									
Birmingham.....	1	0	1	0	0	1	0	0	0
Montgomery.....	0	0	0	0	1	0	0	0	0
WEST SOUTH CENTRAL									
Oklahoma:									
Tulsa.....	1	0	0	0	0	0	0	0	0
Texas:									
Dallas.....	0	0	0	0	1	1	0	0	0
MOUNTAIN									
New Mexico:									
Albuquerque.....	1	0	0	0	0	0	0	0	0
Arizona:									
Phoenix.....	1	2	0	1	0	0	0	0	0
Utah:									
Salt Lake.....	3	1	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle.....	3	2	0	0	0	0	0	0	0
California:									
Los Angeles.....	3	1	0	0	0	0	1	0	0
San Francisco.....	0	0	4	1	0	0	0	0	0

¹ Typhus fever; 1 case at Tampa, Fla.

The following table gives the rates per 100,000 population for 98 cities for the 5-week period ended February 8, 1930, compared with those for a like period ended February 9, 1929. The population figures used in computing the rates are approximate estimates, authoritative figures for many of the cities not being available. The 98 cities reporting cases have an estimated aggregate population of more than 32,000,000. The 91 cities reporting deaths have more than 30,500,000 estimated population.

Summary of weekly reports from cities, January 5 to February 8, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929¹

DIPHTHERIA CASE RATES

	Week ended—									
	Jan. 11, 1930	Jan. 12, 1929	Jan. 18, 1930	Jan. 19, 1929	Jan. 25, 1930	Jan. 26, 1929	Feb. 1, 1930	Feb. 2, 1929	Feb. 8, 1930	Feb. 9, 1929
98 cities	118	139	110	132	114	125	115	109	95	117
New England	156	183	122	177	146	200	128	108	112	117
Middle Atlantic	113	157	94	158	96	136	103	133	97	141
East North Central	130	124	127	107	145	122	140	106	103	113
West North Central	123	158	108	146	82	115	47	90	94	146
South Atlantic	83	118	103	99	106	79	106	107	70	67
East South Central	79	190	67	171	74	137	94	68	81	82
West South Central	170	119	205	76	157	114	232	95	168	114
Mountain	69	87	51	61	51	52	34	70	34	78
Pacific	85	67	94	104	92	92	65	65	43	68

MEASLES CASE RATES

	176	235	208	218	227	261	221	274	329	252
98 cities	176	235	208	218	227	261	221	274	329	252
New England	112	873	157	700	210	667	323	514	305	561
Middle Atlantic	116	94	124	70	117	56	130	93	186	129
East North Central	153	315	152	303	137	381	168	418	172	66
West North Central	303	304	304	423	457	627	604	770	695	1,193
South Atlantic	118	66	167	84	157	84	287	103	245	133
East South Central	13	7	40	34	27	27	61	7	81	14
West South Central	325	43	400	11	624	34	314	34	695	34
Mountain	146	427	240	853	377	871	462	697	479	1,341
Pacific	517	115	676	56	730	75	121	99	1,200	135

SCARLET FEVER CASE RATES

	271	221	278	225	295	230	305	232	327	246
98 cities	271	221	278	225	295	230	305	232	327	246
New England	397	317	363	294	419	317	321	363	479	305
Middle Atlantic	232	190	223	183	239	217	252	190	274	186
East North Central	352	251	398	238	379	262	420	240	432	318
West North Central	216	283	260	218	307	296	316	306	332	312
South Atlantic	201	124	198	122	176	114	205	131	203	146
East South Central	106	156	101	232	169	232	162	157	216	246
West South Central	120	182	134	183	105	99	78	145	138	232
Mountain	481	157	335	183	479	104	616	61	411	113
Pacific	281	282	276	377	402	258	367	350	338	304

¹ The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1930, and 1929, respectively.

² South Bend, Ind., not included.

³ Denver, Colo., not included.

⁴ Portland, Me., Buffalo, N. Y., St. Louis, Mo., Denver, Colo., and San Francisco, Calif., not included.

⁵ Portland, Me., Kansas City, Mo., and Denver, Colo., not included.

⁶ Portland, Me., not included.

⁷ Buffalo, N. Y., not included.

⁸ St. Louis, Mo., not included.

⁹ Kansas City, Mo., not included.

¹⁰ San Francisco, Calif., not included.

Summary of weekly reports from cities, January 5 to February 8, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929—Continued

SMALLPOX CASE RATES

	Week ended—									
	Jan. 11, 1930	Jan. 12, 1929	Jan. 18, 1930	Jan. 19, 1929	Jan. 25, 1930	Jan. 26, 1929	Feb. 1, 1930	Feb. 2, 1929	Feb. 8, 1930	Feb. 9, 1929
98 cities.....	29	5	33	¹ 7	² 26	8	⁴ 33	7	⁵ 30	5
New England.....	0	2	0	0	4	0	⁶ 0	0	⁶ 2	0
Middle Atlantic.....	0	0	0	0	1	0	⁷ 0	0	0	0
East North Central.....	27	3	36	⁸ 6	19	8	39	10	34	8
West North Central.....	89	6	121	13	70	2	⁸ 53	8	⁹ 69	2
South Atlantic.....	0	2	5	6	2	7	5	11	4	0
East South Central.....	7	41	0	7	0	14	13	7	0	0
West South Central.....	43	16	41	46	37	46	78	27	101	50
Mountain.....	43	78	51	17	³ 34	61	³ 86	78	³ 34	28
Pacific.....	170	7	144	17	177	19	¹⁰ 244	7	146	7

TYPHOID FEVER CASE RATES

	3	4	6	² 4	³ 4	4	⁴ 5	4	⁴ 4	5
98 cities.....	3	4	6	² 4	³ 4	4	⁴ 5	4	⁴ 4	5
New England.....	0	2	4	4	0	2	⁶ 0	2	⁶ 0	2
Middle Atlantic.....	3	4	3	4	5	2	⁷ 5	4	3	4
East North Central.....	2	1	3	² 3	3	4	3	1	5	2
West North Central.....	2	0	11	2	2	4	⁸ 6	6	⁹ 2	3
South Atlantic.....	9	4	5	6	7	2	7	7	11	6
East South Central.....	7	7	13	21	20	7	7	0	20	7
West South Central.....	4	28	7	8	4	23	4	8	7	27
Mountain.....	0	0	60	0	³ 17	0	³ 17	0	³ 0	9
Pacific.....	5	0	5	2	2	10	¹⁰ 20	7	2	7

INFLUENZA DEATH RATES

	19	241	19	¹ 183	² 22	131	¹¹ 18	84	⁶ 14	58
91 cities.....	19	241	19	¹ 183	² 22	131	¹¹ 18	84	⁶ 14	58
New England.....	0	100	9	141	9	204	⁶ 2	141	⁶ 5	90
Middle Atlantic.....	14	161	15	152	14	134	⁷ 16	83	11	58
East North Central.....	12	236	17	² 148	17	70	13	48	13	28
West North Central.....	30	165	27	123	18	69	18	45	⁹ 19	51
South Atlantic.....	31	395	22	288	31	182	11	114	11	92
East South Central.....	65	1,592	44	948	59	619	59	298	37	127
West South Central.....	64	467	65	320	111	199	83	168	54	102
Mountain.....	43	165	26	157	³ 0	70	⁷ 17	35	³ 17	78
Pacific.....	15	79	15	75	18	44	¹⁰ 5	41	9	41

PNEUMONIA DEATH RATES

	167	408	155	² 366	³ 142	327	¹¹ 171	273	⁶ 176	230
91 cities.....	167	408	155	² 366	³ 142	327	¹¹ 171	273	⁶ 176	230
New England.....	170	323	115	442	128	465	⁶ 181	507	⁶ 151	384
Middle Atlantic.....	192	443	187	446	135	454	⁷ 165	360	190	298
East North Central.....	122	414	109	² 280	111	184	129	170	139	133
West North Central.....	192	285	207	241	148	189	160	189	⁹ 146	186
South Atlantic.....	177	485	170	474	196	388	218	268	198	240
East South Central.....	136	659	162	455	221	358	272	209	236	194
West South Central.....	210	528	237	383	310	297	314	191	291	191
Mountain.....	223	200	249	200	³ 171	157	² 205	148	³ 274	235
Pacific.....	147	134	169	119	95	123	¹⁰ 167	113	160	129

¹ South Bend, Ind., not included.² Denver, Colo., not included.³ Portland, Me., Buffalo, N. Y., St. Louis, Mo., Denver, Colo., and San Francisco, Calif., not included.⁴ Portland, Me., Kansas City, Mo., and Denver, Colo., not included.⁵ Portland, Me., not included.⁶ Buffalo, N. Y., not included.⁷ St. Louis, Mo., not included.⁸ Kansas City, Mo., not included.⁹ San Francisco, Calif., not included.

FOREIGN AND INSULAR

CANADA

Quebec Province—Communicable diseases—Week ended February 8, 1930.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended February 8, 1930, as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis	1	Ophthalmia neonatorum	1
Chicken pox	76	Polio-myelitis	2
Diphtheria	45	Puerperal fever	2
German measles	7	Scarlet fever	119
Influenza	16	Tuberculosis	26
Measles	136	Typhoid fever	5
Mumps	139	Whooping cough	111

Ontario Province--Communicable diseases (comparative)—Four weeks ended January 25, 1930.—The following table shows the number of cases of certain communicable diseases, with deaths therefrom, reported in the Province of Ontario, Canada, for the four weeks ended January 25, 1930, as compared with the corresponding period of 1929.

Disease	1929		1930	
	Cases	Deaths	Cases	Deaths
Cerebrospinal meningitis	15	4	7	4
Chancroid	7	0	2	0
Chicken pox	773	1	1,183	0
Conjunctivitis	1	0	0	0
Diphtheria	300	24	269	13
Erysipelas	0	0	2	0
German measles	19	0	177	0
Gout	1	0	0	0
Gonorrhoea	99	0	159	0
Influenza	7,495	323	20	5
Lethargic encephalitis	0	2	0	0
Measles	2,418	12	627	6
Mumps	369	0	223	0
Puerperal septicemia	1	0	0	0
Pneumonia		490		187
Polio-myelitis	2	0	2	1
Scarlet fever	391	0	739	3
Smallpox ¹	38	0	51	0
Syphilis	90	0	110	0
Tuberculosis	96	46	85	55
Typhoid fever	21	1	21	2
Whooping cough	274	0	311	0

¹ The cases of smallpox in 1930 were reported from the following municipalities: Gainsboro, 1; Ottawa, 9; Bonfield, 13; Blandford, 1; Nepean, 3; Woodstock, 4; Welland, 3; Cochrane, 2; Sudbury, 7; Toronto, 2; Himsforth, 1; Port Arthur, 2; North Bay, 3.

Ontario Province—Communicable diseases—Years 1928 and 1929.—The following tabulation shows the number of cases and deaths from certain communicable diseases in the Province of Ontario, Canada, for the years 1928 and 1929.

Disease	1928		1929	
	Cases	Deaths	Cases	Deaths
Bronchitis.....	0	0	0	1
Cerebrospinal meningitis.....	42	31	101	31
Chancroid.....	22	0	18	2
Chicken pox.....	8,618	2	9,819	2
Conjunctivitis.....	21	0	15	2
Diphtheria.....	2,918	148	3,261	185
Dysentery.....	5	15	18	18
Erysipelas.....	0	0	5	1
German measles.....	242	0	308	0
Gonorrhea.....	13	7	10	3
Orchitis.....	2,062	0	2,327	0
Influenza.....	4,730	255	8,382	514
Lethargic encephalitis.....	24	18	18	10
Malaria.....	0	0	1	0
Measles.....	16,158	14	20,709	39
Mumps.....	19,802	3	4,003	9
Oedema, malignant.....	2	2	0	1
Paratyphoid fever.....	0	0	12	1
Pneumonia.....		1,710		2,133
Polio-myelitis.....	85	7	477	26
Puerperal septicaemia.....		8		13
Rabies.....	1	1	0	0
Scarlet fever.....	4,508	35	4,837	31
Septic sore throat.....	109	4	73	2
Smallpox.....	864	1	708	0
Syphilis.....	1,477	6	2,030	6
Tetanus.....	2	3	3	4
Trachoma.....	1	0	0	0
Trichinosis.....	0	0	1	1
Tuberculosis.....	1,551	708	1,407	563
Typhoid fever.....	715	41	738	33
Undulant fever.....	14	0	2	0
Whooping cough.....	4,150	48	4,897	31

DENMARK

Communicable diseases—November, 1929.—During the month of November, 1929, cases of certain communicable diseases were reported in Denmark, as follows:

Disease	Cases	Disease	Cases
Broncho-pneumonia.....	1,606	Paratyphoid fever.....	9
Cerebrospinal meningitis.....	2	Pneumonia.....	290
Chicken pox.....	50	Polio-myelitis.....	18
Diphtheria and croup.....	604	Puerperal fever.....	20
Erysipelas.....	296	Scabies.....	1,048
German measles.....	2	Scarlet fever.....	292
Influenza.....	4,375	Tuberculosis.....	202
Jaundice.....	131	Typhoid fever.....	14
Lethargic encephalitis.....	10	Undulant fever.....	40
Measles.....	458	Whooping cough.....	780
Mumps.....	1,289		

¹ Reported from the State Serum Institute

JAMAICA

Communicable diseases—Four weeks ended February 1, 1930.—During the four weeks ended February 1, 1930, cases of certain communicable diseases were reported in Kingston, Jamaica, and in the Island of Jamaica outside of Kingston, as follows:

Disease	Kingston	Other localities	Disease	Kingston	Other localities
Cerebrospinal meningitis.....	1		Puerperal fever.....		1
Chicken pox.....	9	8	Tuberculosis.....	28	60
Dysentery.....	2	6	Typhoid fever.....	12	60
Leprosy.....		1			

MEXICO

Tampico—Communicable diseases—January, 1930.—During the month of January, 1930, cases of certain communicable diseases, with deaths, were reported at Tampico, Mexico, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Chicken pox.....	8		Smallpox.....	1	
Enteritis (various).....		29	Tuberculosis.....	79	31
Influenza.....	47		Typhoid fever.....	5	
Malaria.....	95	27	Whooping cough.....	20	4

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

From medical officers of the Public Health Service, American consuls, International Office of Public Hygiene, Pan American Sanitary Bureau, health section of the League of Nations, and other sources. The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given

CHOLERA

[C indicates cases; D, deaths P, present]

Place		Week ended—											
		November, 1929			December, 1929			January, 1930					
		23	30	7	14	21	25	4	11	18	25		
China:													
Amoy.....	C	1											
Canton.....	C	5	1										
Hankow.....	D	3											
Manchuria:													
Kwantung—Dairen.....	C	1											
Newchwang.....	C												
Nanking.....	C		P										
Shanghai.....	C	1,306	984		35								
Swatow.....	D	98	69		11								
Tientsin.....	C	12	37		22								
Chosen: Chemulpo.....	C		P										
India:													
Bassein.....	C	41,090	26,895	16,354	17,340	4,326	5,267	4,937	5,052	4,619			
Bombay.....	D	24,005	16,667	10,051	10,680	2,468	3,158	2,491	2,786	2,802			
Calcutta.....	C	170	145	160	232	85	55	60	65	40	38	15	44
Karachi.....	D	106	59	70	129	45	29	40		28	27	9	26
Madras.....	C	10	11										
Negapatam.....	C				3		1	1					
Rangoon.....	C				2							1	
Tuticorin.....	D	1		1	2							3	
					2							3	
					1							3	
					2							2	
					5							3	
					18							2	
					11							2	
					3							6	
					4							1	
					1							1	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

[illegible]

Pondicherry Province.....	C	12	8	5	19	7	2	7	6	5		
India (Portuguese).....	D	7	8	3	16	7	1	7	6	5		
Indo-China (see also table below):	C		1	1		1	2	3	1	3		
Prompenh.....	C	3	1	1	2						1	
Seigon and Cholon.....	D	3	1						2	2	1	1
Iraq:	D								2	2	1	1
Baghdad.....	C				9	20	4	6	5	3	1	3
Basra.....	D				3	10	1	1	3	1	1	1
Diyalah Liwa.....	C	13	4		63	46						
Kirkuk Liwa.....	D	12			18	7						
Mossoul.....	C		21	16	90	70						
Ivory Coast (see table below).	D	81	68	24	26	19	53	27			26	
Mexico (see also table below).	D	13	17	6	59	17	3				7	
Acapulco.....	C	4	1									
Aguascalientes.....	D	4	1									
Coahuila.....	D	7	6	8	1							
Jalisco (State): Guadalaajara.....	D	5	8	4	1	6	1	5	1	2	3	4
Juarez.....	D	3	P	10	6	11			3	2		
Mexico City and surrounding territory.....	D	21	7	8	9	19	2	15	5	3		
Morelos State. ¹	D	6	1	8	4	9			1	3		
Morocco (see table below)	C	141	110	39	18	5			1			
Netherlands: Rotterdam.....	D	1	7	5	1	1			1	1		
Nigeria: Lagos.....	C	5	95	154	11		*		40	2	18	3
Panama (see table below).	C											
Philippine Islands: Sarangani and Balut Islands. ¹	D	2		1	2	4						
Poland.....	C											
Portugal:	C											
Lisbon.....	C	1	17		2	3	3			2		
Oporto.....	C			2								
Rumania.....	D		1	2								
Siam.....	C	32	23	33	7	3	6		27	9		
Somaland, British: Boales.....	D	7	3	2	25	24	1	2	2	7	1	
Somaland, French: Jibuti.....	D	31	12	4	16	9	4	3	1	1	1	
	D	21	11									

¹ Newspaper reports of Feb. 4, 1930, show an epidemic of smallpox in Isonacatepec, Morelos State, and vicinity, giving 600 deaths in last two weeks.

* On Feb. 1, 1930, 317 cases of smallpox with 102 deaths were reported to date in the Sarangani and Balut Islands.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX--Continued

[C indicates cases; D, deaths; P, present.]

[illegible]

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER—Continued

[C indicates cases; D, deaths, P, present]

Place	Week ended—											
	November, 1929			December, 1929			January, 1930			Feb. 1, 1930		
	23	30	7	14	21	28	4	11	18	25		
Egypt:												
Alexandria.....		1	2									
Assuan.....												
Behelra Province.....	31	6	16	2			9					
Cairo.....	4	2	4	1			7		6	8		
Dakablieh.....		3										
Port Said.....		1										
Suez.....	3											
Greece (see table below).	2	1										
Iraq: Baghdad Liwa.....												
Ireland (Irish Free State): Donegal County—Dunfaughy.....							1					
Latvia (see table below).												
Lithuania (see table below).												
Mexico:												
Aguscalientes.....	1											
Mexico City, including municipalities in Federal District.....	11	14	9	3	1	1	2	4	2			
Morocco.....	1	6		1								
Palestine.....	6		5	4		1	1	1	1	7	2	7
Persia.....	1	5	3	2	1							
Peru:	23											
Arequipa (see table below).	8											
Peru: Arequipa (see table below).												
Poland.....	48	26	31	62	17	16	19	22	18	15	28	67
Portugal: Oporto.....	7	4	3			3	3	4	2	1	1	5
Rumania.....	1			3	2	1	1					
Tunisia.....	9	39	26	19	8	11	32	52	14	68		
Turkey (see table below).	1	4	5	2	2	1	1	1	1	4	2	
	4		1	1	1							

Union of South Africa:

Cape Province.....

Natal.....

Orange Free State.....

Transvaal.....

Yugoslavia (see table below).

Place	July, 1929	August, 1929	September, 1929	October, 1929	November, 1929	December, 1929	Place	July, 1929	August, 1929	September, 1929	October, 1929	November, 1929	December, 1929
Chosen: Seoul.....	C	1	1	1	3	1	Peru: Arequipa.....	D	1	1	1	2	4
Czechoslovakia.....	C	1	1	1	1	1	Turkey.....	C	3	4	10	4	4
France.....	C	6	3	7	7	1	Yugoslavia.....	D	3	1	1	1	6
Greece: Athens.....	C	1	1	3	6	4		D	1	2			1
Latvia.....	C	10	7	3	1	1							
Lithuania.....	D	1	1	1	1	1							

YELLOW FEVER

Since August 1, 1929, the following cases of yellow fever have been reported. Netherov, Brazil, 1 case, Rio de Janeiro, Brazil, 2 cases; Monrovia, Liberia, 1 case. All occurred during the month of September, 1929.

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SPECIAL ARTICLES

Factors in the Variation of Cellular Resistance to Heat
Monthly Summary of Recent State Mortality Statistics



UNITED STATES
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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen R. C. WILLIAMS, *Chief of Division*

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Resistance of *Paramecium* to Heat as Affected by Changes in Hydrogen-ion Concentration and in Inorganic Salt Balance in Surrounding Medium¹

By H. W. CHALKLEY, *Physiologist, Hygienic Laboratory, United States Public Health Service*

It is well known that organisms differ in resistance to increased temperature. It is also apparent that this difference extends to tissues and cells of single organisms.

Schereschewsky (1928) has reported the selective destruction of malignant tumor tissue in mice by means of a high-frequency electric field. Experiments recently performed in this laboratory by Kahler, Chalkley, and Voegtlin (1929) have shown that the destruction of cells in such a field is a thermal effect. N. Westermarck (1927) using diathermy was able to destroy malignant growths in rats without injury to surrounding normal tissue. The experiments of Lambert (1912) and of Rohdenberg and Prime (1921) prove that there exists a considerable difference in thermal death point between normal and tumor tissue.

Inasmuch as little is known as to the factors responsible for variation in cellular resistance to heat, and since knowledge of these factors may be of importance from a therapeutic standpoint, their determination constitutes a problem of considerable importance. The experiments here presented constitute an attempt to ascertain the effect of changes in hydrogen-ion concentration and in the inorganic salt balance of the surrounding medium on the resistance of cells to heat.

MATERIAL AND METHODS

During the experiments of Kahler, Chalkley, and Voegtlin referred to above, it was noted that *Paramecia* from different cultures exhibited slight but noticeable differences in their resistance to heat. Since material was abundant, since its unicellular character made rapid and complete environmental change a simple matter, and since changes

¹ The problem discussed here originated at the instigation of Prof. Carl Voegtlin, Chief of the Division of Pharmacology, and the author wishes to express his thanks to Professor Voegtlin for his advice and suggestions during the progress of the investigation.

in its normal motility would serve as an excellent index of injury, *Paramecium caudatum* was used in these experiments. The *Paramecia* utilized were the progeny of a single cell.² Culture was made in glass crystallizing dishes, holding about 200 cubic centimeters, in saline solution composed of NaCl 0.1 gram, CaCl₂ 0.006 gram, KCl 0.004 gram, NaHCO₃ 0.004 gram, H₂O 1,000 cubic centimeters. From 10 to 12 wheat grains were added to each culture. The hydrogen-ion concentration of the cultures was maintained at slight acidity, pH 6.8 to 6.2, by addition of food (wheat) when necessary. Closer control was found to be unnecessary.

The saline solutions in which the *Paramecia* were heated were (1) saline as used for culture and referred to hereafter as balanced saline;³ (2) the same but with the KCl omitted and CaCl₂ added in equimolar concentration; (3) the same but with the CaCl₂ omitted and KCl added in equimolar concentration; (4) the same but with KCl and CaCl₂ omitted and NaCl added in equimolar concentration. All of these were used at hydrogen-ion concentrations from pH 5.8 or 6.0 to 8.4 or 8.6, as the continued resistance of the organisms required. The pH of all solutions was controlled as follows: The solution was adjusted to a point slightly alkaline of the required value by omitting a portion of the NaCl and substituting NaHCO₃, the substitution being made so that the Na concentration was not changed. The exact pH wanted was then reached by addition of dilute HCl with aeration to remove CO₂ until the solution was stable at the requisite pH over a period of at least two hours. The error due to dilution with HCl was deemed negligible as it never exceeded 0.2 per cent by volume. The pH measurements were made with a LaMotte colorimetric set, and since with these slightly buffered solutions the indicator might introduce error, two indicators at least were used over the range. The indicators used were methyl red, brom thymol purple, thymol blue, phenol red, and cresol red. These allow simultaneous colorimetric measurements with two different indicators over the range used, with the exception of pH 8.6 where cresol red was used alone.

The experimental procedure was as follows: 10 cubic centimeters of culture fluid with suspended *Paramecia* was taken from a vigorous culture, the *Paramecia* thus obtained were washed three times with balanced saline at pH 6.8 by low speed centrifugation, and then left for 24 hours. From these *Paramecia*, lots of 25 each were moved with a paraffined capillary pipette and each lot was placed separately in a paraffined Petri dish. Then by means of a pipette superfluous saline was removed until the drop containing the *Paramecia* was reduced to approximately 0.02 cubic centimeter as checked by comparison with

² No conjugation was observed during the course of the investigation.

³ The term "balanced" is not used to imply a physiologically determined optimum condition. The solution used is simply one that was found empirically to be suitable for culture purposes.

measured drops of saline placed in the dish for reference. The dish was kept covered, except when under manipulation, to prevent evaporation or accidental contamination.

The lots of *Paramecia* were then transferred separately at timed intervals to paraffined test tubes each of which contained 5 cubic centimeters of the saline solution used. These tubes had all been previously brought to 40° C. in a water bath and were maintained at that temperature throughout the experiment. When exposure to heat had been completed, all tubes were removed simultaneously from the bath and were cooled in a second bath at 20° to 22° C. for 30 minutes. At the end of this time the tubes were emptied separately into small round-bottomed glass dishes and the surviving *Paramecia* in each lot were counted. Each individual as counted was removed from the dish with a pipette. A test of the accuracy of count was made by running through the procedure with the baths at room temperature. Ten such runs gave a maximum error, occurring once in the 10 runs, of 2 *Paramecia* or 8 per cent on individual counts.⁴

EFFECT OF CHANGES IN HYDROGEN-ION CONCENTRATION ON THE RESISTANCE OF *PARAMECIA* TO A TEMPERATURE OF 40° C. WHEN EXPOSURE IS MADE (a) IN BALANCED SALINE; (b) IN SALINE WITH POTASSIUM EXCESS; (c) IN SALINE WITH CALCIUM EXCESS; (d) IN SALINE WITH SODIUM EXCESS

(a) *In balanced saline.*—*Paramecia* were exposed to 40° C. in balanced saline at pH 6.0 to 8.6 in 0.2 unit steps, for 2, 4, 8, 12, and 16 minutes. Five counts were obtained of the number of protozoa surviving at the end of each time interval in each hydrogen-ion concentration used. These counts were averaged and the percentage of survivors was plotted as a function of time. This gave a series of curves which showed the rate of death at each pH. From this series of curves the time taken to kill 50 per cent at each pH was obtained by interpolation and plotted as a function of pH. Inasmuch as the making of this series of tests took several days, controls were established by obtaining, after all the counts had been completed for a given pH, a single count at pH 6.6 (the first pH value used) at each time interval used, for comparison with the previous counts. Similarly, when other solutions were used such control counts were always made using the balanced solution at pH 6.4, 6.6, or 7.0. This latitude in pH value was allowed, because owing to the difficulty of making the solutions it seemed impracticable to run all controls at exactly the same pH. Further, once the curve for the balanced solution was established, variation in the pH used for controls served to establish the curve in the balanced solution more firmly by providing additional check points.

The number of cells coagulated, i. e., in which the protoplasm was opaque and no rupture of the cell had occurred, was noted in all

⁴ A binocular dissecting microscope was used for making the counts and other observations.

counts. The figures obtained were averaged for each pH step and plotted as percentages of total deaths for each pH. Also a qualitative observation was made for each pH of the condition of the cell as to swelling. This observation was based on simultaneous ocular comparison of surviving *Paramecia* with normal individuals. The curves

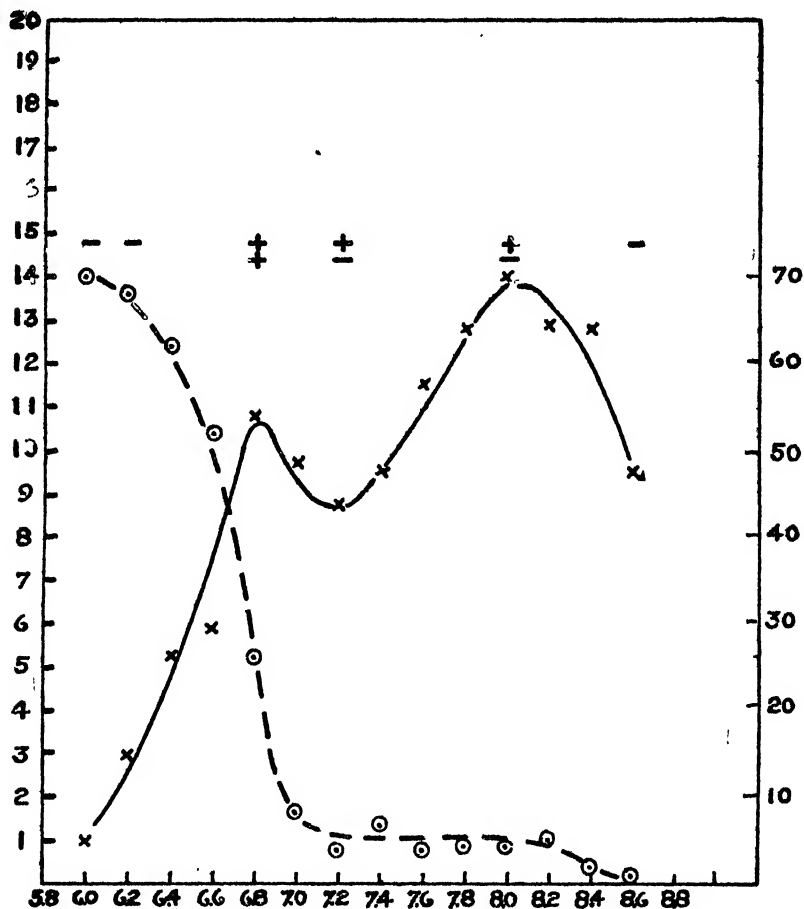


FIGURE 1.—Graph showing the variations in resistance to heat and swelling, and in the per cent of deaths due to coagulation of the cell, in *Paramecia* exposed to 40° C in balanced saline at different hydrogen-ion concentrations. Abscissa: represent pH, ordinate scale on left, time in minutes required to kill 50 per cent; scale on right per cent of deaths in which cells were unruptured and coagulated, continuous line, resistance, broken line, per cent of deaths by coagulation. Swelling indicated as follows. — none or shrinkage; ± slight to none; + marked; ‡ great

obtained are presented in Figure 1. From the curves it will be noted that the time of resistance rises from 1 minute at pH 6.0 to a maximum of 10.6 minutes at pH 6.8, drops to a minimum of 8.8 minutes at pH 7.2, rises again to a maximum of 14 minutes at pH 8.0, and then declines to 9.5 minutes at pH 8.6. The percentage of cells coagulated is 70 per cent at pH 6.0. It then drops gradually to about 5 per cent

at pH 7.2, remains relatively constant to pH 8.2, and then drops gradually to 2 per cent at pH 8.6.

Swelling apparently is negligible or absent at pH 6.0, but great at pH 6.8, and apparently less at pH 7.0 and on into the alkaline range. In the extreme alkaline range, from approximately pH 8.0 on, few fragments of cells were found. The membrane and cell contents

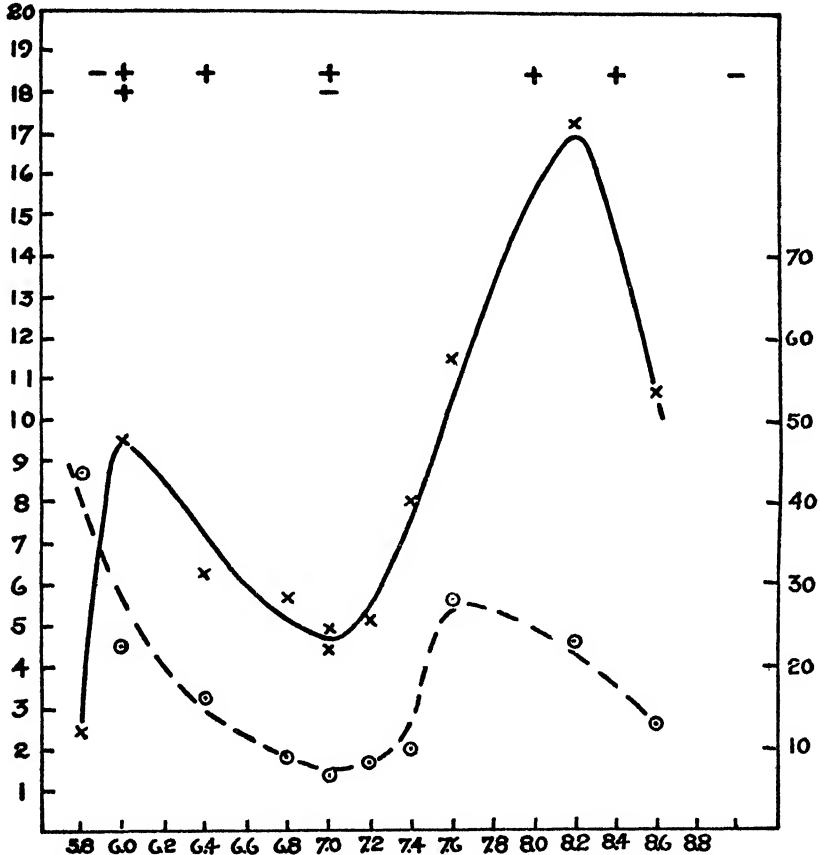


FIGURE 2.—Graph showing the variation in resistance to heat and swelling and in the per cent of deaths due to coagulation in *Paramcra* exposed to 40° C. in saline with potassium excess at different hydrogen-ion concentrations. Abscissas, pH, ordinate scale on the left, time in minutes to kill 50 per cent, scale on right, per cent of deaths in which cells were unruptured and coagulated; continuous line, resistance; broken line, per cent of deaths by coagulation. Swelling indicated as follows: — none or shrinkage; ± slight to none; + marked; ‡ great

rapidly dissolved and the degree of swelling as noted in surviving cells was, if anything, less than that at neutrality.

(b) *In saline with potassium excess.*—In this experiment the procedure was as previously outlined, except that exposure was made in a saline solution which contained in place of the CaCl_2 of the balanced saline an equimolar addition of KCl . The curves for variation of resistance and coagulation are presented in Figure 2.

From these it will be seen that the time of resistance increases from 2.4 minutes at pH 5.8 to 9.5 minutes at pH 6.0, declines gradually to about 4.8 minutes at pH 7.0, rises sharply to a maximum of 17.3 minutes at pH 8.2, then declines to 10.7 minutes at pH 8.6. As compared with the results of the previous experiment the maximum on the acid side is lower and occurs at a lower pH. The neutral mini-

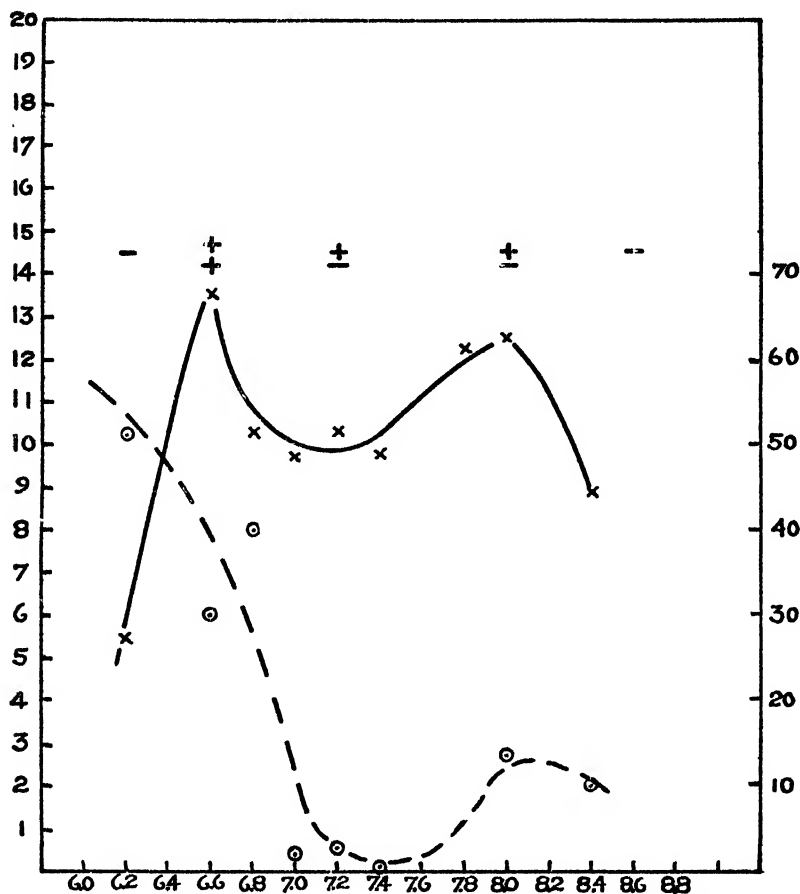


FIGURE 3.—Graph showing the variation in resistance to heat and swelling and in the per cent of deaths due to coagulation in *Paramecia* exposed to 40° C. in saline with calcium excess, at different hydrogen-ion concentrations. Abscissus, pH; ordinate scale on left, time in minutes to kill 50 per cent; scale on right, per cent of deaths in which cells were unruptured and coagulated, continuous line, resistance, broken line, per cent of deaths by coagulation. Swelling is indicated as follows — none or shrinkage; ± none to slight, + marked; † great

imum is lower and possibly shifted slightly toward the acid side. The alkaline maximum is much increased and is shifted slightly to the alkaline side.

The curve for the percentage of deaths showing coagulation starts at 45 per cent at pH 5.8, drops to about 8 per cent at pH 7.2, rises to about 28 per cent at pH 7.8, and then declines to 12 per cent at pH

8.6. The swelling was not noticeable at pH 5.8, very marked at pH 6.0, less at pH 6.8 and 7.0, more marked at pH 7.6, and negligible at pH 8.6. A comparison with the preceding experiment could not be made as it was impracticable to place the data on a quantitative basis.

(c) *In saline with calcium excess.*—This experiment was carried out as before, but the KCl was omitted from the saline and replaced by molar equivalent CaCl_2 . The curves for resistance and coagulation are presented in Figure 3.

It will be noted from these graphs that the resistance curve again shows two maxima; this time, however, the maxima occur at pH 6.6 on the acid side and at pH 8.0 on the alkaline side. The acid maximum time is the greatest, reaching 13.5 minutes, while the alkaline is 12.5 minutes. The neutral minimum is rather wider and apparently at pH 7.2, the resistance time here being 10.0 minutes. The coagulation curve drops from 52 per cent at pH 6.2 to about 2 per cent at pH 7.0, rises to 13 per cent at pH 8.0, and then declines to 10 per cent at pH 8.4. The swelling was, as before, negligible in extreme acidity, noticeable in the region of the acid resistance maximum and less at neutrality. The alkaline side, however, showed definitely less swelling than at pH 7.0.

(d) *In saline with sodium excess.*—In this experiment the same procedure was followed but both KCl and CaCl_2 were omitted and sufficient NaCl was added to replace the Ca and K concentrations by Na.

The resistance and coagulation curves obtained are given in Figure 4. From this figure it will be noted that the resistance rises from about 1 minute at pH 6.2 to a maximum of about 4 minutes at 6.6, declines to a minimum of 2 minutes at pH 7.2, reaches a maximum of 5.2 minutes at pH 7.6, and drops very gradually to about 4.5 minutes at pH 8.4. Thus, in comparison with the previous experiments, the resistance over the whole range is much lowered.

The percentage of coagulation drops from 35 per cent at pH 6.2 to 0 per cent at pH 7.4, and then remains at about 1 per cent or less for the remainder of the alkaline range covered. The swelling noted was none at extreme acidity and markedly less throughout than in the previous experiments. It appeared also that the character of the coagulation was somewhat different. It was not so definite and the cells appeared milky rather than densely white.

DISCUSSION

From the foregoing it appears that when *Paramecium* is exposed to a temperature of 40°C its resistance is affected by the hydrogen-ion concentration, and also by the salt balance of the surrounding medium.

If the region between pH 6.6 and pH 7.8 approximating the pH range of mammalian tissue is considered, it is apparent that with reference to the balanced solution used, an excess of potassium tends to decrease and an excess of calcium to increase resistance. It is also to be noted that in alkaline conditions the resistance is in general greater than in acid.

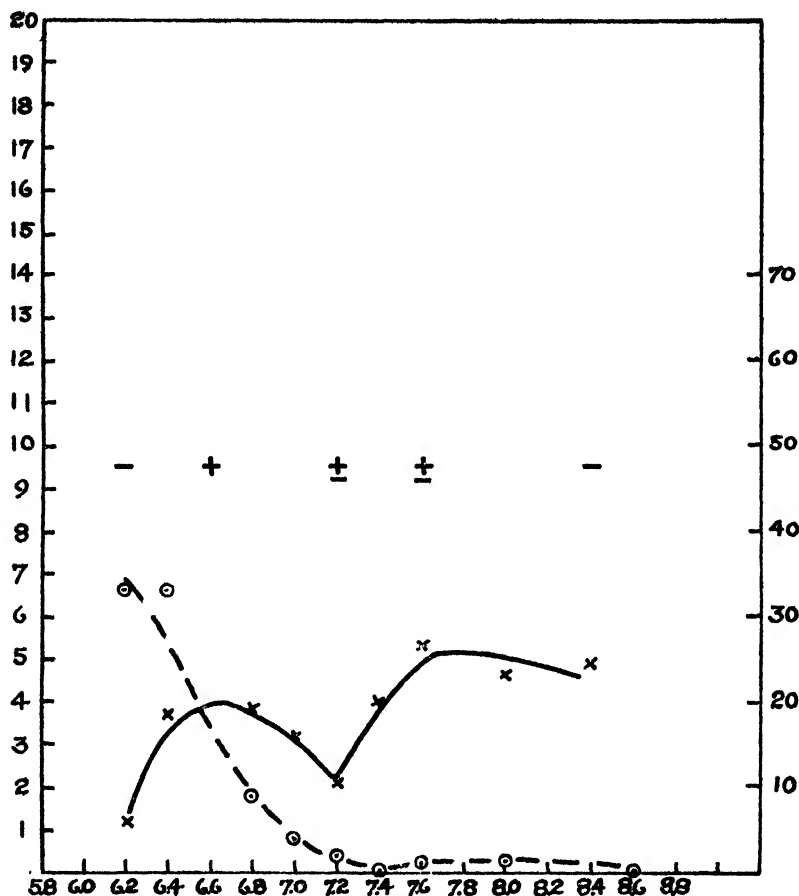


FIGURE 4. - Graph showing the variation in resistance to heat and swelling, and in the per cent of deaths due to coagulation in *Paramecia* exposed to 49° C. in saline with sodium excess, at different hydrogen-ion concentrations. Abscissae, pH, ordinate scale on left, time in minutes to kill 50 per cent; scale on right, per cent of deaths in which cells were unruptured and coagulated; continuous line, resistance, broken line, per cent of deaths by coagulation. Swelling is indicated as follows: - none or shrinkage, ± none to slight; + marked; ‡ great

It is of interest to note that Beebe (1904) and Rohdenberg and Krehbiel (1922) find that in tumors there is in general a tendency toward relative excess of potassium, and also to note that there is reason to expect from the relatively high lactic acid production of such tissue that the fluids in actual contact with the cells will have a relatively low pH.

It would therefore seem probable (with the necessary reservations when results obtained for one type of cell are applied to another) that the low resistance to heat of tumor tissue as reported by Rohdenberg and Prime, Lambert and others (loc. cit.) is a correlate of the altered salt balance and acid base equilibrium that prevails in their immediate environment. Further research along this line might make possible a rationale of heat treatment of tumors.

From the curves presented for coagulation it will be noted that the type of death varies with the pH. Coagulative changes appear to be associated with death when the cell is in acid media, while swelling resulting in rupture of the cell membrane or dissolution of the cell with no swelling result when neutral or alkaline media, respectively, are used. It is proposed to deal with the implications of these differences in a separate paper.

SUMMARY

The resistance of *Paramecium caudatum* to a temperature of 40° C. varies with the hydrogen-ion concentration of the medium. The curve obtained by plotting the resistance, as measured by the time necessary to kill 50 per cent of the organisms exposed, against pH is bimodal, having maxima in the alkaline and acid ranges and a minimum at or about neutrality.

In a balanced solution, and in solutions containing an excess of sodium or potassium, the alkaline maximum is the higher. If calcium is in excess, the acid maximum is the higher.

In general, acidity decreases and alkalinity increases resistance.

Between pH 6.6 and 7.6 excess of potassium decreases resistance and excess of calcium increases resistance under the experimental conditions.

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DEATH RATES IN A GROUP OF INSURED PERSONS

Rates for Principal Causes of Death for December, 1929, and for the Years 1911 and 1919 to 1929

The accompanying tables are taken from the Statistical Bulletin for January, 1930, issued by the Metropolitan Life Insurance Co. They present the mortality experience of the industrial insurance department of the company for the principal causes of death for December, 1929, and a comparison of the rates for the years 1911 and

1919 to 1929, inclusive. The rates for 1929 are based on a strength of nearly 19,000,000 insured persons in the United States and Canada, comprising about one-seventh of the total and about one-third of the urban population of the two countries. While this is a more or less selected group and is largely urban, the death rate serves as an index of conditions in the general population. In recent years the general death rates in this group of persons have been consistently about 72 per cent of the rates for the registration area of the United States.

DECEMBER, 1929

The December death rate for these insured persons, 8.7 per 1,000, is stated to be the lowest recorded rate for this month. It is much lower than the rate for the corresponding month of the preceding year, 9.3 per 1,000, which reflected the rise due to the influenza epidemic. In addition to influenza and pneumonia, the following named causes of death showed improvement as compared with December of 1928: Whooping cough, diphtheria, tuberculosis, diabetes, respiratory diseases other than pneumonia, diarrhea and enteritis, and chronic nephritis. The death rate for typhoid fever was higher for December, 1929, than for the same month of 1928, as was also that for automobile fatalities.

Death rates (annual basis) per 100,000 for principal causes of death, December, 1929

[Industrial department, Metropolitan Life Insurance Co.]

Cause of death	Rate per 100,000 lives exposed ¹				
	Decem- ber, 1929 ²	Novem- ber, 1929 ²	Decem- ber, 1928 ²	Year	
				1929 ²	1928 ²
Total, all causes.....	869.0	790.7	926.0	916.2	916.6
Typhoid fever.....	2.1	2.4	1.7	2.3	2.7
Measles.....	1.8	.4	1.4	2.9	5.2
Scarlet fever.....	3.3	1.8	2.4	2.6	2.7
Whooping cough.....	3.3	3.7	4.8	5.6	5.7
Diphtheria.....	10.4	11.8	11.3	8.0	9.7
Influenza.....	20.5	13.1	48.8	41.1	24.8
Tuberculosis (all forms).....	74.1	73.2	75.8	85.2	90.1
Tuberculosis of respiratory system.....	66.2	65.4	68.3	75.2	78.8
Cancer.....	75.1	73.8	74.0	76.0	75.7
Diabetes mellitus.....	16.7	16.0	18.0	18.0	17.6
Cerebral hemorrhage.....	57.7	50.6	57.3	56.9	56.7
Organic diseases of heart.....	144.5	128.1	144.3	144.0	142.2
Pneumonia (all forms).....	87.9	64.1	103.9	86.9	89.3
Other respiratory diseases.....	10.8	9.2	10.5	11.4	12.4
Diarrhea and enteritis.....	12.7	15.0	14.0	20.4	24.0
Bright's disease (chronic nephritis).....	65.6	63.1	68.6	68.1	70.5
Fuerperal state.....	11.4	11.1	9.9	13.3	13.9
Suicides.....	7.5	7.7	7.1	8.4	8.2
Homicides.....	6.9	5.3	6.9	6.4	6.7
Other external causes (excluding suicides and homi- cides).....	65.0	61.7	59.4	63.9	62.6
Traumatism by automobiles.....	21.3	23.9	20.5	20.6	15.4
All other causes.....	191.8	179.8	196.8	194.0	195.7

¹ All figures in this table include infants insured under 1 year of age.

² All 1929 death rates subject to slight correction, as they are based on provisional estimate of lives exposed to risk.

³ 1928 death rate is final figure.

YEAR 1929 AND COMPARISON WITH 1911 AND YEARS 1919-1928

The general death rate in this group of persons for the year 1929 was 8.7 per 1,000, practically the same as that for 1928 and for the month of December of 1929. This is approximately one-third less than the rate for 1911, namely, 12.5 per 1,000.

The year 1929 brought new low records for some diseases and conditions which are important from the standpoint of health work. The tuberculosis death rate was 85.6 per 100,000, the lowest rate recorded to date for this group. Typhoid fever, the scourge of urban populations 30 years ago, also registered a new low death rate, 2.3 per 100,000, as did the rate for puerperal causes. The mortality rates for measles and diphtheria also show declines to new minimum figures. The falling death rate for diarrhea and enteritis reflects improved standards of hygiene—better protection of food and water supplies and more intelligent care in the feeding of children. The rate for 1929, viz, 7.8 per 100,000, was approximately only one-fourth of the figure for 1911.

Among the unfavorable items reflecting health conditions for 1929 are influenza, which registered the highest death rate for any year since 1920, organic heart disease, cancer, and diabetes. Automobile fatalities also increased.

The influenza mortality brought the combined death rate for influenza and pneumonia higher than it has been since 1920, although the pneumonia rate alone was only a little higher than the average for the six preceding years; in fact only four years (1927, 1925, 1924, and 1921) registered a lower pneumonia death rate than that for 1929.

The death rate for heart disease was 146.1 per 100,000, as compared with 144.4 in 1928, the previous maximum rate for this group of persons. The rate for 1929 was 3 per cent higher than in 1911.

The death rate for cancer continued its slow but persistent increase to a new high point, 77.3 per 100,000, as compared with 77.0 in 1928. The 1929 rate for cancer was 13.7 per cent in excess of that for 1911.

Diabetes also registered a new high death rate in 1929, the rate being 18.3 per 100,000 as compared with 17.9 in 1928, and with 13.3 for 1911—an increase over the latter rate of nearly 38 per cent.

The rate for automobile fatalities was 20.9 per 100,000, the highest rate yet recorded for these persons, a rise of 12 per cent in one year and of 809 per cent since 1911. Approximately one-third of all accidental deaths among these 19,000,000 persons was in connection with the use of automobiles.

Acute and chronic alcoholism (not including deaths from methanol and denatured alcohol) caused 641 deaths in this group in 1929, as compared with 599 deaths in 1928. It is stated that among these

persons the alcoholism death rate during the past eight years has been six times as high in the United States as in Canada.

Deaths from cirrhosis of the liver numbered 1,208 in 1929, as compared with 1,217 in 1928. The rate, however, declined from 6.7 to 6.5 per 100,000.

Death rates for principal causes per 100,000 lives exposed, 1929 as compared with 1911 and years 1919 to 1928, ages 1 and over

Cause of death	1929 ¹	1928	1927	1926	1925	1924	1923	1922	1921	1920	1919	1911
All causes of death	874.3	860.3	842.2	885.7	846.3	848.0	897.1	882.9	870.6	989.4	1,063.0	1,253.0
Typhoid fever	2.3	2.7	4.7	4.2	4.6	4.4	5.2	5.7	6.7	6.7	7.3	22.8
Communicable diseases of childhood	16.3	19.0	19.7	25.9	19.7	26.2	33.1	29.8	37.9	43.1	31.5	58.9
Measles	2.4	4.2	3.4	8.0	2.5	5.7	8.4	4.3	3.2	8.5	3.5	11.4
Scarlet fever	2.6	2.6	3.0	3.4	3.4	4.3	4.4	4.9	7.0	6.0	3.9	13.1
Whooping cough	2.9	2.7	3.1	5.0	3.6	3.5	4.8	2.6	3.9	6.6	3.2	7.1
Diphtheria	8.5	9.5	10.2	9.5	10.2	12.7	15.5	18.0	23.8	22.1	20.9	27.3
Influenza and pneumonia	109.5	94.8	78.7	105.6	88.3	84.4	107.7	95.3	76.5	159.5	214.1	131.2
Influenza	36.9	22.0	15.7	27.4	19.4	14.2	30.1	21.7	8.7	53.5	96.9	15.9
Pneumonia	72.6	72.8	63.0	78.2	68.9	70.2	77.6	73.7	67.8	106.1	117.2	115.3
Poliomyelitis	.6	1.2	2.0	.7	1.4	1.0	.7	.9	1.7	1.0	.6	1.6
Tuberculosis, all forms	85.6	90.6	93.8	99.5	98.2	104.4	110.5	114.2	117.4	137.9	156.5	224.6
Tuberculosis of respiratory system	76.2	80.0	83.0	87.9	87.0	93.4	100.6	103.6	105.6	124.0	141.0	203.0
Cancer, all forms	77.3	77.0	75.6	75.1	71.8	71.5	72.7	72.0	71.7	69.8	67.0	68.0
Diabetes mellitus	18.3	17.9	17.1	17.0	15.5	15.1	16.2	17.2	16.5	14.1	13.4	13.3
Alcoholism	3.4	3.3	3.5	3.7	3.0	2.9	3.0	2.1	.9	.6	1.4	4.0
Cerebral hemorrhage, apoplexy	57.7	57.6	56.0	56.5	54.4	61.1	61.9	62.9	62.1	61.3	59.8	64.2
Diseases of heart	146.1	144.4	134.7	136.4	128.7	125.2	128.7	126.7	117.4	117.0	113.9	141.8
Diarrhea and enteritis	7.8	8.7	9.1	10.5	12.3	11.3	11.1	10.8	14.2	15.8	16.9	24.0
Chronic nephritis (Bright's disease)	69.2	71.8	70.8	74.9	71.2	60.5	60.6	70.3	68.0	70.8	73.5	93.0
Puerperal state, total	13.5	14.2	15.7	15.6	16.9	17.2	17.9	19.0	19.8	23.0	20.0	19.8
Puerperal septicemia	5.0	5.0	6.4	6.0	6.6	6.6	6.9	7.4	8.5	8.6	6.7	8.8
Puerperal albuminuria and convulsions	3.1	3.1	3.2	3.6	3.8	4.3	4.2	4.7	4.9	5.0	4.8	4.7
Accidents of pregnancy	1.5	1.6	1.3	1.7	1.6	1.6	1.8	1.7	1.6	3.1	3.0	1.7
Total, external causes	78.9	77.8	70.8	77.2	78.3	76.9	77.8	71.8	72.0	72.0	94.2	97.9
Suicides	8.5	8.5	8.4	7.8	7.0	7.3	7.4	7.5	7.6	6.1	6.8	13.3
Homicides	6.5	6.8	7.4	7.2	7.4	7.2	7.3	6.3	6.7	5.8	6.9	7.2
Accidents, total	63.9	62.5	63.9	62.3	63.9	62.4	63.0	58.0	57.5	59.6	63.8	77.4
Accidental burns	4.8	5.3	5.3	6.1	6.1	6.4	6.3	6.1	6.6	8.1	8.1	8.8
Accidental drowning	6.4	7.1	6.8	6.3	6.5	7.3	6.7	7.3	8.2	6.7	8.6	10.2
Accidental traumatism by fall	8.9	8.0	8.5	7.9	8.1	7.7	8.4	7.3	7.1	7.3	8.0	13.2
Accidental traumatism by machines	1.6	1.2	1.4	1.4	1.3	1.3	1.7	1.6	1.0	1.7	1.6	1.8
Railroad accidents	3.8	3.9	4.1	4.2	4.0	4.0	4.9	4.1	3.9	5.2	5.7	9.5
Automobile accidents	20.9	18.7	18.7	17.0	16.8	15.9	15.4	13.6	12.2	11.1	10.7	2.3
All other accidents	17.4	14.3	19.1	19.4	21.2	19.7	19.5	18.0	18.5	19.5	21.2	31.6
War deaths	(?)	(?)	(?)	(?)	(?)	(?)	(?)	1	1	5	16.0	
Other diseases and conditions	187.7	188.3	181.0	183.6	183.4	180.9	181.7	185.1	190.5	197.8	193.5	283.5

¹ All 1929 death rates subject to slight correction, as they are based on a provisional estimate of lives exposed to risk.

² Death rate less than 0.05 per 100,000.

RECENT STATE MORTALITY STATISTICS ^a

For the information of public health officials and others interested, mortality rates for the latest month for which records are available are given for various States in the following tables. These rates are computed from current and generally preliminary reports furnished by State departments of health. Because of (a) some lack of uniformity in the method of classifying deaths according to cause, (b) some delayed death certificates, and (c) various other reasons, these

^a From the Office of Statistical Investigations, U. S. Public Health Service.

preliminary rates can not be expected to agree in all instances with final rates published by the Bureau of the Census; the final figures are based on a complete review and retabulation of the individual death certificates from every State. The preliminary rates given in the following tables are intended to serve as a current index of mortality until final figures are issued by the Bureau of the Census.

For purposes of comparison, the mortality records for a few preceding years are given, the rates being those for the month corresponding to the latest month for which the 1929 rate is available. These comparative rates for preceding years are from the same source as the current reports. Although final figures are often available for these earlier years, the preliminary figures are retained as being more comparable with current preliminary rates.

Monthly State mortality statistics

[All rates are on an annual basis, and, with the exception of mortality from all causes, infant mortality, and congenital malformations and diseases of early infancy, are per 100,000 population]

ALL CAUSES: ANNUAL RATE PER 1,000 POPULATION

	1929									Corresponding month for—			
	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1928	1927	1926	1925
Alabama.....	11.2	11.9	11.8	11.1	11.0	10.8	11.0	10.9	13.2	13.4	13.3	11.6	13.5
White.....	9.0	9.2	9.2	8.7	8.5	8.4	8.8	8.5	10.5	11.1	11.3	9.9	-----
Colored.....	15.3	16.9	16.8	15.7	15.7	15.5	15.1	15.2	18.4	17.5	17.0	15.1	-----
Arizona.....	16.1	17.0	17.9	13.2	11.3	11.8	11.6	13.7	14.9	20.0	-----	-----	-----
California.....	15.2	13.8	14.2	13.1	12.8	12.4	13.1	14.3	-----	16.6	-----	-----	-----
Connecticut.....	10.4	11.1	9.0	9.3	8.9	9.5	10.2	10.0	-----	10.2	9.4	10.4	11.6
Florida.....	-----	-----	-----	-----	-----	-----	11.8	12.2	-----	-----	-----	-----	-----
White.....	-----	-----	-----	-----	-----	-----	9.5	10.7	-----	-----	-----	-----	-----
Colored.....	-----	-----	-----	-----	-----	-----	16.9	15.4	-----	-----	-----	-----	-----
Georgia.....	9.6	9.1	11.3	10.3	10.0	10.4	10.5	9.9	12.1	-----	-----	-----	-----
Hawaii Territory.....	14.6	14.5	12.7	12.1	9.7	10.8	10.3	11.1	10.7	12.6	11.9	-----	-----
Indiana.....	12.4	12.2	11.0	10.5	10.5	10.9	10.9	11.0	-----	11.2	11.4	11.5	11.6
Iowa.....	10.7	10.4	-----	9.7	8.6	9.7	9.5	13.4	10.8	14.4	-----	-----	-----
Kansas.....	11.0	9.8	9.6	9.2	9.7	8.7	9.0	10.2	-----	10.8	-----	-----	-----
Louisiana.....	11.5	11.2	11.6	11.1	10.8	11.1	11.8	12.4	-----	11.9	-----	-----	-----
White.....	8.8	8.2	8.2	8.3	8.4	9.0	9.1	9.7	-----	9.4	-----	-----	-----
Colored.....	16.5	16.7	16.9	16.0	15.1	15.1	16.8	17.3	-----	16.6	-----	-----	-----
Maryland.....	-----	-----	-----	11.7	11.9	11.1	12.2	12.5	14.0	-----	-----	-----	-----
White.....	-----	-----	-----	10.4	10.8	9.9	11.0	11.6	12.6	-----	-----	-----	-----
Colored.....	-----	-----	-----	18.4	17.5	16.8	18.2	17.3	21.7	-----	-----	-----	-----
Michigan.....	12.7	13.2	11.7	10.8	10.4	11.2	10.9	10.7	11.9	16.2	-----	-----	-----
Minnesota.....	9.3	9.2	8.6	8.3	8.0	7.9	8.1	8.6	9.7	12.5	-----	-----	-----
Mississippi.....	11.8	11.1	12.6	11.7	10.7	10.0	11.9	-----	9.7	10.7	-----	-----	-----
White.....	8.8	8.4	9.0	8.6	8.4	8.0	9.8	-----	-----	8.1	-----	-----	-----
Colored.....	14.6	13.7	15.9	14.5	12.7	11.7	13.8	-----	-----	13.2	-----	-----	-----
Montana.....	-----	-----	-----	-----	-----	9.0	-----	-----	-----	-----	-----	-----	-----
Nebraska.....	9.7	9.6	8.4	8.2	7.7	8.4	-----	-----	-----	8.0	-----	-----	-----
New Jersey.....	12.1	11.3	10.5	10.4	9.0	10.3	10.8	11.2	12.7	13.2	11.5	13.1	12.3
New York.....	13.5	13.0	16.0	11.1	11.3	11.4	12.2	12.2	-----	12.4	12.4	12.6	14.5
North Carolina.....	11.7	11.9	-----	-----	-----	-----	-----	-----	10.7	17.5	-----	-----	-----
Pennsylvania.....	11.7	11.2	9.8	9.6	9.2	10.0	10.6	10.7	-----	11.5	11.5	11.7	12.0
South Dakota.....	8.0	9.0	7.1	6.8	8.3	7.3	7.2	6.3	10.1	14.1	-----	-----	-----
Tennessee.....	11.3	10.7	10.9	11.9	10.9	10.8	11.0	11.4	14.2	16.1	13.6	12.7	-----
White.....	9.6	9.1	9.3	10.1	9.4	9.2	9.4	9.9	12.9	-----	-----	-----	-----
Colored.....	19.8	18.2	18.9	20.9	18.2	18.4	18.4	18.7	20.5	-----	-----	-----	-----
Virginia.....	10.3	9.8	9.7	10.2	8.9	9.0	9.6	10.2	12.1	17.1	-----	-----	-----
White.....	8.8	7.8	8.0	8.8	7.4	7.4	8.3	9.0	10.2	11.1	-----	-----	-----
Colored.....	14.4	15.1	14.4	14.0	13.0	13.2	12.9	13.4	17.0	17.3	-----	-----	-----
Wisconsin.....	11.1	10.6	10.0	-----	-----	8.9	9.2	9.4	11.0	-----	-----	-----	-----

¹ Exclusive of New York City.

Monthly State mortality statistics—Continued

INFANT MORTALITY, PER 1,000 LIVE BIRTHS

	1929										Corresponding month for—			
	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.		1928	1927	1926	1925
Alabama.....	69	78	73	70	60	61	67	62	61		72	75	53	-----
White.....	62	66	69	67	52	54	59	51	48		60	65	45	-----
Colored.....	80	90	81	75	75	75	83	84	84		95	92	68	-----
Arizona.....	115	139	185	112	129	142	110	95	97		148	-----	-----	-----
California.....	69	65	63	62	56	56	56	58	-----		69	-----	-----	-----
Connecticut.....	61	79	50	44	53	74	72	71	-----		43	63	60	73
Florida.....	-----	-----	-----	-----	-----	-----	65	58	-----		-----	-----	-----	-----
White.....	-----	-----	-----	-----	-----	-----	44	49	-----		-----	-----	-----	-----
Colored.....	-----	-----	-----	-----	-----	-----	105	76	-----		-----	-----	-----	-----
Georgia.....	-----	-----	-----	-----	-----	63	73	68	78		-----	-----	-----	-----
Hawaii Territory.....	117	109	108	89	158	81	83	90	94		113	-----	-----	-----
Indiana.....	60	63	48	52	64	74	62	55	66		81	61	73	70
Iowa.....	61	48	-----	44	43	40	45	49	49		44	-----	-----	-----
Kansas.....	69	53	49	47	49	47	46	49	-----		56	-----	-----	-----
Louisiana.....	86	91	95	69	64	62	71	68	-----		68	-----	-----	-----
Maryland.....	-----	-----	-----	70	82	78	80	66	70		-----	-----	-----	-----
White.....	-----	-----	-----	60	75	68	66	57	56		-----	-----	-----	-----
Colored.....	-----	-----	-----	105	113	111	134	99	120		-----	-----	-----	-----
Michigan.....	67	69	57	53	51	68	65	53	59		86	-----	-----	-----
Minnesota.....	51	49	36	39	40	42	40	38	44		56	-----	-----	-----
Montana.....	-----	-----	-----	-----	-----	55	-----	-----	-----		-----	-----	-----	-----
Nebraska.....	50	48	48	36	37	49	-----	-----	-----		50	-----	-----	-----
New Jersey.....	70	59	43	46	56	69	59	54	-----		-----	-----	-----	-----
New York.....	70	64	52	45	47	58	64	58	-----		63	64	76	69
Pennsylvania.....	69	65	51	49	50	74	68	60	-----		65	64	72	74
South Dakota.....	63	63	41	50	39	45	40	51	44		59	-----	-----	-----
Tennessee.....	61	86	63	83	71	63	70	73	70		-----	-----	-----	-----
Virginia.....	61	-----	67	75	61	65	62	65	68		72	-----	-----	-----
Wisconsin.....	89	60	51	50	43	56	54	50	56		-----	-----	-----	-----

CONGENITAL MALFORMATIONS AND DISEASES OF EARLY INFANCY (159-163), PER 1,000 LIVE BIRTHS

Alabama.....	27	34	29	27	30	31	21	26	24	23	28	25	-----
White.....	29	34	34	30	30	29	33	26	23	26	27	23	-----
Colored.....	24	34	20	21	31	35	29	26	28	18	29	28	-----
Arizona.....	30	35	35	34	32	23	26	46	66	37	-----	-----	-----
California.....	33	32	30	27	26	30	31	31	-----	31	-----	-----	-----
Florida.....	-----	-----	-----	-----	-----	-----	29	29	-----	-----	-----	-----	-----
White.....	-----	-----	-----	-----	-----	-----	25	27	-----	-----	-----	-----	-----
Colored.....	-----	-----	-----	-----	-----	-----	38	34	-----	-----	-----	-----	-----
Iowa.....	35	31	-----	30	30	27	28	29	25	35	-----	-----	-----
Kansas.....	29	33	36	31	30	30	29	30	-----	34	-----	-----	-----
Louisiana.....	31	32	34	28	30	28	29	30	-----	25	-----	-----	-----
Maryland.....	-----	-----	-----	36	34	35	38	32	30	-----	-----	-----	-----
White.....	-----	-----	-----	36	37	31	36	29	27	-----	-----	-----	-----
Colored.....	-----	-----	-----	36	27	49	46	39	38	-----	-----	-----	-----
Michigan.....	35	38	33	36	33	33	36	40	35	39	-----	-----	-----
Minnesota.....	33	32	26	28	29	30	29	24	28	21	-----	-----	-----
Nebraska.....	31	29	33	22	26	35	-----	-----	-----	29	-----	-----	-----
New York.....	38	41	35	45	35	33	38	37	-----	39	39	44	39
Pennsylvania.....	34	35	32	30	29	32	33	30	-----	34	35	-----	-----
South Dakota.....	32	29	21	35	16	26	31	31	22	28	-----	-----	-----
Tennessee.....	20	26	28	29	25	25	26	27	23	-----	-----	-----	-----

TYPHOID FEVER (1)

Alabama.....	5.7	5.5	11.4	12.4	17.4	11.3	6.9	8.0	3.2	6.0	8.9	9.0	15.3
Arizona.....	12.8	32.3	25.7	12.4	5.0	15.4	14.9	7.7	2.5	(¹)	-----	-----	-----
California.....	1.6	1.6	1.9	3.1	2.6	3.5	2.3	1.9	-----	1.1	-----	-----	-----
Connecticut.....	-----	1.4	1.5	1.4	1.4	7	1.4	1.5	-----	(²)	(²)	1.6	2.4
Florida.....	-----	-----	-----	-----	-----	-----	5.0	3.4	-----	-----	-----	-----	-----
Georgia.....	5.3	7.4	12.2	20.2	19.9	20.9	14.3	8.4	9.9	-----	-----	-----	-----
Hawaii Territory.....	3.5	3.4	3.5	6.6	-----	-----	6.8	3.3	3.4	-----	-----	-----	-----
Illinois.....	9	5	1.6	2.2	1.9	2.5	2.2	-----	1.0	2.1	-----	-----	4.6
Indiana.....	3.4	1.5	2.3	7.0	5.6	5.0	5.6	6.1	3.0	3.0	1.6	2.2	-----
Iowa.....	2.6	1.0	-----	9.7	3.4	2.5	2.4	7.3	5.3	3.4	-----	-----	-----
Kansas.....	1.3	1.3	5.3	3.2	7.1	2.0	3.2	5.3	-----	2.0	-----	-----	-----
Louisiana.....	11.2	14.5	10.0	17.5	16.9	18.1	13.9	13.7	-----	12.5	-----	-----	-----
Maryland.....	-----	-----	-----	5.1	8.0	7.5	5.8	6.3	2.9	-----	-----	-----	-----

¹ Exclusive of New York City.² No deaths.

Monthly State mortality statistics—Continued

TYPHOID FEVER (1)—continued

	1929									Corresponding month for—			
	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1928	1927	1926	1925
Michigan.....	1.9	2.1	1.9	1.5	2.8	3.5	2.8	1.9	0.5	1.3	—	—	—
Minnesota.....	.5	.4	1.3	2.6	1.3	1.8	.4	.9	(²)	1.4	—	—	—
Mississippi.....	4.1	7.2	15.6	19.7	19.1	15.6	6.6	—	—	12.5	—	—	—
Montana.....	—	—	—	—	—	17.7	—	—	—	—	—	—	—
Nebraska.....	0	2.5	.9	1.7	2.5	5.2	—	—	—	3.5	—	—	—
New Jersey.....	.3	1.9	.3	1.9	1.8	2.2	2.8	1.9	1.8	—	—	—	—
New York ¹.....	.6	.6	2.1	2.3	2.1	3.2	2.5	2.4	—	8.1	2.0	4.3	3.5
North Carolina.....	2.1	3.2	—	—	—	—	—	—	4.0	7.2	—	—	—
Pennsylvania.....	.4	1.8	2.3	2.5	2.5	3.3	2.3	2.5	—	2.1	3.4	4.9	—
South Carolina.....	3.9	10.1	22.8	25.3	27.8	20.2	15.8	9.8	—	15.0	—	—	—
South Dakota.....	—	—	3.5	1.7	3.3	12.1	3.3	6.9	—	6.7	—	—	—
Tennessee.....	2.9	5.2	7.3	19.3	31.1	25.3	16.5	17.5	12.7	8.9	—	—	—
Virginia.....	.9	5.0	3.8	7.8	5.9	4.3	7.3	3.8	5.0	2.3	—	—	—
Wisconsin.....	1.2	.4	.8	.8	2.4	2.1	2.0	1.7	1.2	.8	—	—	—

MEASLES (7)

	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1928	1927	1926	1925
Alabama.....	5.7	3.2	2.8	1.4	0.5	0.5	0.5	0.5	0.9	3.2	2.8	—	—
California.....	—	.5	—	.8	.5	—	.3	—	—	—	—	—	—
Connecticut.....	7.4	6.5	3.7	7	—	.7	—	(²)	—	.7	(²)	—	3.2
Florida.....	—	—	—	—	—	—	(²)	(²)	—	—	—	—	—
Georgia.....	3.0	2.2	—	—	.4	.4	—	—	—	—	—	—	—
Hawaii Territory.....	—	16.9	17.4	13.2	3.3	—	(²)	(²)	—	(²)	(²)	—	—
Illinois.....	10.1	9.7	6.9	2.1	.8	.2	.2	.5	1.1	1.1	.5	2.7	1.9
Indiana.....	13.4	7.0	5.0	.4	.4	—	.7	(²)	1.1	(²)	1.1	—	—
Iowa.....	2.5	1.9	—	.5	—	1.0	1.5	3.3	2.4	—	—	—	—
Kansas.....	5.3	7.1	7.3	1.3	1.3	1.3	.6	.7	—	—	—	—	—
Louisiana.....	4.4	4.2	0	2.4	0	4.4	.6	(²)	—	.6	—	—	—
Maryland.....	—	—	—	7	1.5	—	—	—	—	—	—	—	—
Michigan.....	7.7	9.2	5.0	2.3	.3	—	.8	2.4	2.8	1.3	—	—	—
Minnesota.....	5.8	4.3	4.9	1.3	—	.9	.4	1.8	3.0	1.3	—	—	—
Mississippi.....	7.5	5.3	2.0	2.0	.7	0	—	—	—	2.6	—	—	—
Nebraska.....	0	4.2	7.8	1.7	1.7	1.7	—	—	—	(²)	—	—	—
New Jersey.....	2.2	.6	1.0	.3	.3	0	0	.3	.9	—	—	—	—
New York ¹	3.6	4.1	2.1	1.0	1.4	.6	.6	.9	—	1.3	.7	1.8	3.5
North Carolina.....	.8	.8	—	—	—	—	—	—	—	2.0	—	—	—
Pennsylvania.....	6.0	5.9	3.8	1.8	1.0	.7	.7	1.4	—	2.3	1.3	2.3	—
South Carolina.....	—	.6	—	—	—	—	(²)	(²)	—	.7	4.6	—	—
South Dakota.....	6.9	1.7	1.7	3.3	—	—	(²)	(²)	1.7	—	—	—	—
Tennessee.....	1.0	.5	.5	1.5	—	.5	.9	2.4	3.3	.5	—	—	—
Virginia.....	2.4	3.7	.9	.5	.9	—	1.4	.9	—	2.7	—	—	—
Wisconsin.....	7.0	6.0	4.5	2.0	—	.8	—	1.2	2.8	.4	—	—	—

SCARLET FEVER (8)

	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1928	1927	1926	1925
Alabama.....	—	—	0.9	1.4	0.9	0.5	0.5	2.4	3.2	—	1.4	1.9	1.9
Arizona.....	20.5	2.5	(²)	(²)	(²)	(²)	(²)	2.6	2.5	2.5	—	—	—
California.....	3.7	4.4	2.9	.8	.5	.8	.8	1.3	—	1.9	—	—	—
Connecticut.....	.7	.7	.7	1.4	1.4	—	.7	(²)	—	(²)	(²)	2.3	3.2
Florida.....	—	—	—	—	—	—	(²)	(²)	—	—	—	—	—
Georgia.....	1.1	.7	—	—	1.5	2.3	1.5	1.5	2.6	—	—	—	—
Illinois.....	6.2	5.3	3.7	3.8	.5	.8	3.0	—	.5	4.5	2.7	1.4	3.2
Indiana.....	3.8	4.4	3.4	1.5	1.9	.8	1.1	1.9	3.3	2.6	1.9	3.4	—
Iowa.....	3.5	1.9	—	1.5	1.5	1.0	1.9	4.0	1.9	7.3	—	—	—
Kansas.....	6.0	2.6	2.7	—	—	—	1.3	6.6	—	5.3	—	—	—
Louisiana.....	.6	1.8	0	0	.6	0	1.2	1.2	—	3.1	—	—	—
Maryland.....	—	—	—	1.5	—	8	2.2	2.3	2.9	—	—	—	—
Michigan.....	7.7	3.3	2.7	1.5	.5	.8	1.5	2.7	2.3	5.0	—	—	—
Minnesota.....	2.7	2.2	—	1.3	1.7	1.3	1.3	2.2	3.9	1.7	—	—	—
Montana.....	—	—	—	—	—	—	—	—	—	(²)	—	—	—
Nebraska.....	9.5	6.7	1.7	1.7	0	1.7	—	1.3	.9	—	—	—	—
New Jersey.....	2.2	1.5	1.6	.3	—	1.0	.6	—	—	—	—	—	—
New York ¹	2.6	2.3	1.1	.8	1.4	1.1	1.0	1.1	—	2.8	1.3	.7	1.5
North Carolina.....	2.9	2.4	—	—	—	—	—	1.6	—	1.6	—	—	—
Pennsylvania.....	3.3	3.1	2.1	1.4	1.0	1.2	1.1	1.5	—	2.0	3.2	2.8	—
South Carolina.....	—	1.3	.7	1.3	—	.7	(²)	—	—	.7	—	—	—
South Dakota.....	—	6.7	5.2	—	1.7	—	1.7	(²)	3.3	3.3	—	—	—
Tennessee.....	2.9	2.8	—	.9	.5	1.5	2.8	3.4	5.2	2.8	—	—	—
Virginia.....	—	.5	.5	.5	.5	.5	3.7	1.9	5.5	2.3	—	—	—
Wisconsin.....	5.4	.4	2.9	2.0	1.2	.8	2.4	.4	4.4	3.6	—	—	—

¹ Exclusive of New York City.² No deaths.

Monthly *S*ale mortality statistics—Continued

WHOOPING COUGH (9)

	1929									Corresponding month for—			
	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1928	1927	1926	1925
Alabama.....	10.4	10.1	10.4	17.4	11.9	6.6	4.6	7.1	6.4	6.9	5.2	3.8	6.7
Arizona.....	10.3	12.4	20.5	5.0	5.0	5.1	(?)	2.6	(?)	17.4	.....	.....	.....
California.....	8.3	9.0	10.2	7.8	6.7	3.5	2.8	2.7	.....	6.4	.....	.....	.....
Connecticut.....	.7	2.2	3.0	2.2	2.2	1.5	.7	2.2	.....	2.3	5.4	3.9	8.7
Florida.....	.....	.....	.....	.....	.....	.....	3.3	1.7	.....	.....	.....	.....	.....
Georgia.....	4.9	4.4	13.7	15.8	13.6	12.9	9.6	4.9	9.2	.....	.....	.....	.....
Hawaii Territory.....	83.7	67.5	38.3	16.4	6.6	13.6	9.9	.....	.....	20.2	(?)	.....	.....
Illinois.....	3.5	4.3	3.4	3.2	5.9	5.1	2.4	.....	2.5	3.7	3.3	3.7	1.1
Indiana.....	6.5	7.0	6.5	4.8	6.7	4.2	3.3	3.4	3.3	5.6	3.7	9.1	.....
Iowa.....	8.0	4.8	.....	4.8	4.8	5.0	.....	3.3	2.4	5.3	.....	.....	.....
Kansas.....	4.6	2.6	2.7	4.5	3.8	2.0	3.2	4.0	.....	3.3	.....	.....	.....
Louisiana.....	7.5	6.0	6.9	11.5	4.8	4.4	3.0	5.6	.....	5.6	.....	.....	.....
Maryland.....	.....	.....	.....	7.3	11.7	5.3	6.6	7.5	8.7	.....	.....	.....	.....
Michigan.....	7.2	8.2	5.6	3.3	7.4	6.6	4.6	2.1	2.8	10.0	.....	.....	.....
Minnesota.....	4.9	5.2	.9	4.8	3.0	4.0	2.6	1.8	3.0	6.5	.....	.....	.....
Mississippi.....	14.3	10.5	17.7	12.5	11.8	8.2	8.5	.....	.....	3.9	.....	.....	.....
Montana.....	.....	.....	.....	.....	.....	4.4	.....	.....	.....	.....	.....	.....	.....
Nebraska.....	1.7	6.7	3.5	5.0	3.3	3.5	.....	1.6	2.5	1.7	.....	.....	.....
New Jersey.....	5.7	4.0	2.2	2.8	4.9	4.1	4.0	.....	.....	.....	.....	.....	.....
New York ¹	4.3	3.3	2.1	1.3	4.1	2.6	3.7	2.4	.....	2.8	3.3	4.7	2.8
North Carolina.....	7.5	9.6	.....	.....	.....	.....	.....	.....	8.0	7.4	.....	.....	.....
Pennsylvania.....	4.8	4.3	4.3	5.0	6.0	5.0	3.9	3.2	.....	4.4	2.0	6.1	.....
South Carolina.....	13.1	17.1	22.8	18.3	15.8	9.1	8.8	9.1	.....	2.6	10.6	.....	.....
South Dakota.....	1.7	11.7	6.9	1.7	1.7	1.7	3.3	5.2	1.7	.....	.....	.....	.....
Tennessee.....	6.3	7.5	6.3	13.7	10.0	7.8	5.6	6.3	6.6	5.2	.....	.....	.....
Virginia.....	6.1	8.2	9.9	12.8	16.9	9.4	7.3	5.2	11.4	6.4	.....	.....	.....
Wisconsin.....	6.6	5.6	4.9	4.4	4.0	2.1	1.6	3.3	3.6	3.2	.....	.....	.....

DIPHTHERIA (10)

Alabama.....	2.8	2.3	1.4	2.8	7.3	16.6	23.3	17.5	13.3	17.9	19.7	22.7	12.9
Arizona.....	7.7	(?)	2.6	(?)	(?)	.....	5.1	9.9	20.5	14.0	12.4	.....	.....
California.....	3.7	3.4	4.3	1.8	3.1	2.9	4.7	7.7	.....	5.1	.....	.....	.....
Connecticut.....	3.7	4.3	3.7	2.9	1.4	4.4	7.2	4.4	.....	6.0	1.5	1.6	8.0
Florida.....	.....	.....	.....	.....	.....	.....	4.2	6.9	.....	.....	.....	.....	.....
Georgia.....	1.9	22.4	20.9	11.4	5.2	9.9	11.8	7.2	9.6	.....	.....	.....	.....
Hawaii Territory.....	20.9	6.7	10.5	6.6	3.3	13.6	6.6	3.4	9.9	23.6	18.1	.....	.....
Illinois.....	11.6	12.6	11.1	9.1	7.0	4.6	11.5	.....	14.8	15.0	15.8	7.0	8.3
Indiana.....	5.0	3.3	1.5	2.2	3.0	4.2	7.4	8.8	6.7	10.0	11.6	10.9	.....
Iowa.....	2.0	1.5	.....	2.4	1.0	1.5	1.5	2.0	2.9	4.4	.....	.....	.....
Kansas.....	4.6	1.3	1.3	.6	.6	4.0	7.1	10.6	.....	5.3	.....	.....	.....
Louisiana.....	2.5	5.4	3.1	3.6	6.0	5.0	11.5	14.4	.....	14.4	.....	.....	.....
Maryland.....	.....	.....	.....	1.5	5.1	1.5	3.6	6.8	3.6	.....	.....	.....	.....
Michigan.....	10.3	11.3	13.0	9.8	6.9	8.5	13.3	9.3	14.6	12.8	.....	.....	.....
Minnesota.....	2.2	2.6	.9	2.6	1.7	1.8	1.3	4.0	4.3	5.2	.....	.....	.....
Mississippi.....	2.0	.....	1.4	1.3	5.3	6.8	25.6	.....	.....	11.8	.....	.....	.....
Montana.....	.....	.....	.....	.....	.....	8.9	.....	.....	.....	.....	.....	.....	.....
Nebraska.....	4.3	.8	5.2	.8	0	1.7	.....	.....	.....	1.7	.....	.....	.....
New Jersey.....	10.5	10.5	9.9	8.9	5.5	6.7	10.8	15.3	16.9	.....	.....	.....	.....
New York ¹	2.4	3.1	4.1	2.1	2.7	1.7	4.1	4.9	.....	4.6	6.0	5.4	8.5
North Carolina.....	4.1	1.6	.....	.....	.....	.....	.....	.....	31.3	26.4	.....	.....	.....
Pennsylvania.....	6.8	5.7	5.7	4.4	2.9	6.0	7.4	8.1	.....	10.9	12.6	8.4	.....
South Carolina.....	2.0	4.4	3.3	1.9	10.1	10.4	16.4	13.1	.....	22.2	19.8	.....	.....
South Dakota.....	3.5	3.3	.....	.....	.....	1.7	.....	3.5	6.7	1.7	.....	.....	.....
Tennessee.....	2.9	3.3	2.9	1.4	6.1	8.8	20.7	20.4	16.5	18.8	.....	.....	.....
Virginia.....	1.9	1.4	1.4	2.7	3.2	10.4	16.9	13.2	16.0	12.4	.....	.....	.....
Wisconsin.....	.8	4.4	2.5	1.6	2.0	2.1	3.6	3.3	4.4	4.8	.....	.....	.....

¹ Exclusive of New York City.² No deaths.

Monthly State mortality statistics—Continued

INFLUENZA (11)

	1929									Corresponding month for—			
	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1928	1927	1926	1925
Alabama.....	53.2	43.6	19.5	9.6	9.2	9.9	10.1	21.8	58.1	164.7	52.1	29.3	49.6
White.....	47.1	32.2	18.1	8.4	6.3	10.1	9.8	16.7	50.5	152.8	43.7	24.4	—
Colored.....	64.0	77.8	21.8	11.9	14.5	9.5	10.5	31.3	72.5	185.9	67.1	38.1	—
Arizona.....	35.9	27.3	18.4	9.9	2.5	7.7	5.0	5.1	12.4	342.8	—	—	—
California.....	23.5	13.4	7.5	5.2	4.1	5.9	9.3	15.0	—	127.1	—	—	—
Connecticut.....	21.5	9.3	8.7	2.9	2.2	5.2	12.2	11.9	—	9.0	10.7	11.7	22.3
Florida.....	—	—	—	—	—	—	16.7	23.3	—	—	—	—	—
White.....	—	—	—	—	—	—	12.1	13.8	—	—	—	—	—
Colored.....	—	—	—	—	—	—	26.7	44.1	—	—	—	—	—
Georgia.....	74.5	22.4	20.9	11.4	5.2	9.1	19.5	22.4	44.5	—	—	—	—
Hawaii Territory.....	38.3	27.0	20.9	19.7	13.2	0.8	3.3	6.8	3.3	30.4	14.5	—	—
Illinois.....	20.5	15.0	7.1	3.5	3.3	4.8	8.4	—	18.0	—	—	—	—
Indiana.....	36.4	21.1	13.0	11.1	8.5	10.3	18.9	18.8	41.2	267.7	23.9	36.2	36.5
Iowa.....	28.1	28.6	—	9.7	5.3	8.0	9.2	18.6	33.9	256.5	—	—	—
Kansas.....	46.4	29.5	21.2	12.2	11.5	9.9	10.9	17.9	—	29.2	—	—	—
Louisiana.....	41.8	19.9	11.8	11.5	11.5	15.6	18.7	30.3	—	34.3	—	—	—
White.....	30.8	14.9	9.6	8.4	9.3	10.6	12.1	30.8	—	31.8	—	—	—
Colored.....	61.9	20.1	15.9	17.1	15.4	24.8	30.8	54.9	—	38.9	—	—	—
Maryland.....	—	—	—	2.2	.7	5.3	8.7	11.3	14.6	—	—	—	—
White.....	—	—	—	.9	.9	4.5	7.8	11.7	13.0	—	—	—	—
Colored.....	—	—	—	9.1	—	9.4	13.7	9.4	22.8	—	—	—	—
Michigan.....	24.1	21.8	10.2	6.7	5.1	6.4	11.8	9.8	13.6	157.2	—	—	—
Minnesota.....	19.2	17.7	6.7	4.3	5.2	6.3	6.9	11.3	32.0	150.1	—	—	—
Mississippi.....	42.8	27.0	17.7	11.2	7.9	6.8	13.1	—	—	9.2	—	—	—
White.....	34.2	20.7	11.4	17.6	8.3	5.7	13.8	—	—	8.3	—	—	—
Colored.....	50.8	32.7	23.4	15.8	7.5	7.8	12.6	—	—	10.1	—	—	—
Montana.....	—	—	—	—	—	11.1	—	—	—	—	—	—	—
Nebraska.....	32.8	26.8	23.3	5.9	5.0	12.1	—	—	—	0.5	—	—	—
New Jersey.....	15.0	10.2	2.2	2.2	1.8	1.0	4.9	9.9	14.8	45.0	9.7	15.7	11.8
New York ¹	23.1	13.0	3.3	2.9	2.0	3.2	8.1	8.8	—	13.7	11.1	10.6	10.8
North Carolina.....	59.2	37.3	—	—	—	—	—	—	49.3	195.2	—	—	—
Pennsylvania.....	26.9	20.6	10.0	6.7	4.9	9.7	16.7	19.4	—	21.0	19.5	19.8	21.6
South Carolina.....	51.6	20.7	17.6	13.9	10.7	9.1	15.8	28.1	—	60.7	18.5	—	—
South Dakota.....	41.5	38.5	15.6	10.0	11.7	8.6	11.7	13.8	36.8	224.1	—	—	—
Tennessee.....	71.0	33.4	18.0	13.2	10.4	5.8	19.8	36.5	62.6	225.9	52.1	—	—
White.....	61.6	27.8	14.7	11.9	9.7	5.9	16.5	32.9	52.2	—	—	—	—
Colored.....	116.6	60.5	34.1	19.2	13.7	5.7	35.7	54.0	112.7	—	—	—	—
Virginia.....	48.7	19.2	9.9	5.0	5.9	9.0	14.2	15.6	35.2	155.0	—	—	—
White.....	36.6	11.4	5.9	1.9	7.0	3.9	10.1	11.1	29.1	149.8	—	—	—
Colored.....	80.3	39.7	20.6	13.2	3.3	22.2	24.8	27.3	51.3	168.7	—	—	—
Wisconsin.....	27.2	20.7	9.9	7.2	6.0	6.6	10.4	10.3	19.5	199.8	—	—	—

POLIOMYELITIS (22)

Alabama.....	0.9	—	2.8	0.5	1.4	0.5	0.5	1.4	0.9	1.8	—	—	—
Arizona.....	(²)	(²)	2.6	(²)	(²)	2.6	(²)	(²)	(²)	(²)	—	—	—
California.....	.8	2.1	.8	.8	1.8	1.9	.8	1.1	—	1.6	—	—	—
Connecticut.....	—	—	1.5	.7	.7	—	(²)	1.5	—	(²)	0.8	(²)	(²)
Florida.....	—	—	—	—	—	—	(²)	(²)	—	—	—	—	—
Hawaii Territory.....	—	3.4	—	—	3.3	3.4	—	3.4	—	(²)	(²)	—	—
Illinois.....	—	.3	.2	.2	—	.3	.3	—	.2	—	—	—	—
Indiana.....	—	—	.4	—	—	.4	—	.8	.7	.4	—	—	—
Iowa.....	.5	—	—	.5	1.0	1.5	1.5	1.3	1.5	1.5	—	—	—
Kansas.....	—	—	1.3	.6	.6	1.3	1.3	(²)	—	.7	—	—	—
Louisiana.....	1.3	.6	—	.6	.6	—	(²)	.6	—	1.9	—	—	—
Maryland.....	—	—	—	.7	.8	—	—	.8	.7	—	—	—	—
Michigan.....	.5	.5	.8	1.0	1.0	2.1	2.1	1.9	.5	.8	—	—	—
Minnesota.....	.4	.9	—	—	.4	.9	.4	—	—	—	—	—	—
Mississippi.....	1.4	—	2.0	2.0	—	—	—	—	—	.7	—	—	—
Nebraska.....	—	—	.8	.8	1.7	(²)	—	—	—	.9	—	—	—
New Jersey.....	—	.3	.6	.3	.3	1.5	1.5	(²)	.3	—	—	—	—
New York ¹.....	.2	.4	.2	1.4	3.3	4.1	3.7	1.3	—	2.0	2.0	0.7	1.6
North Carolina.....	1.2	.8	—	—	—	—	—	—	.4	—	—	—	—
Pennsylvania.....	—	.5	.7	.5	.7	.6	1.0	1.0	—	.6	1.0	—	—
South Carolina.....	—	1.3	—	.6	.6	.7	.6	.7	—	.7	1.3	—	—
South Dakota.....	—	5.0	—	—	—	—	—	1.7	—	3.3	—	—	—
Tennessee.....	.5	1.9	1.5	1.9	1.4	1.0	2.4	1.5	.5	4.2	—	—	—
Virginia.....	.9	—	—	.9	4.6	1.4	2.3	1.9	.9	1.8	—	—	—
Wisconsin.....	—	.8	1.2	.4	—	1.2	.4	.4	.4	.8	—	—	—

¹ Exclusive of New York City.² No deaths.

Monthly State mortality statistics—Continued

LETHARGIC ENCEPHALITIS (23)

	1929										Corresponding month for—			
	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.		1928	1927	1926	1925
Alabama.....	1.9	0.5	0.5	0.9	0.5	0.9	0.9	1.0	(?)					
Arizona.....	2.6	(?)	(?)	(?)	2.5	(?)	(?)	(?)	(?)		(?)			
California.....	2.4	1.6	1.3	1.3	1.3	1.6	1.8	1.9			1.6			
Connecticut.....		1.4	.7	.7	1.4	2.2	1.4	1.5			(?)			
Florida.....							.8	1.7						
Hawaii Territory.....				3.3	8.3	8.4		(?)						
Illinois.....	1.4	1.1	.7	.3	.2	.2	.2		1.0					
Indiana.....	1.5	.7	1.1	.7	.4	.8		1.1	2.2					
Iowa.....	1.0	1.5		.5		1.5	1.9	1.3	1.9		1.9			
Kansas.....	.7	2.6		1.3	.0		.6	.7						
Louisiana.....	0	1.8	0	0	0	0	1.8	(?)			.6			
Maryland.....						5.4	2.2	3.0	(?)					
Michigan.....	1.6	2.3	2.1	.5	.3	1.1	1.0	.8	1.0		1.0			
Minnesota.....	1.8	1.7	4.0	2.6	.9	.9	1.7	2.7	.4		3.0			
Mississippi.....	1.4	.7	0	0	1.3						1.3			
Montana.....						2.2								
Nebraska.....	0	0	1.7	0	.8	(?)					1.7			
New Jersey.....	1.0	1.2	1.9	.6	1.2	.3	2.5	1.3	.6					
New York ¹.....	.7	.8	2.4	.6	1.0	.2	.6	.4						
North Carolina.....	.4	.4						(?)			.8			
Pennsylvania.....	1.2	1.2	.6	1.0	.7	.7	.7	.6			1.5	1.0	0.9	
South Carolina.....	2.0	4.4	3.3		1.3	1.3	2.5	3.3			2.0	3.3		
South Dakota.....	1.7		1.7				5.0				1.7			
Tennessee.....	1.5		.5	1.9	.9	.6	.9	(?)			.5			
Virginia.....	2.4	.5	.9		1.4	.5	.5	.5	1.4					
Wisconsin.....	1.6	2.8	2.5	2.8	.4	1.2	1.2	.8	.8		.8			

MENINGOCOCCUS MENINGITIS (24)

Alabama.....		0.5	0.9	0.5	0.5	0.5	0.5	1.0	0.9					
Arizona.....	23.1	17.4	18.0	9.9	2.5	12.8	2.5	25.7	19.9		9.9			
California.....	12.6	13.2	9.4	4.7	4.1	5.1	3.4	4.3			2.7			
Connecticut.....	.7	1.4				.7	(?)	3.0	(?)		(?)		0.8	(?)
Florida.....							(?)	.9						
Hawaii Territory.....	38.3	50.6	27.9	19.7	3.3	6.8	10.4	(?)	6.6	6.7	(?)			
Illinois.....	2.8	3.2	2.6	2.1	2.1	.8	1.8		4.3	4.9	1.6	.5	1.1	
Indiana.....	1.9	3.0	1.9	1.1	.7	1.1		1.1	10.3	1.5				
Iowa.....	2.0	1.5		1.9	1.0		.5	2.7	(?)	1.5				
Kansas.....	2.7	3.2	2.0	3.2	1.3	2.0	1.3	2.0		2.0				
Louisiana.....	5.6	1.8	.9	.6	1.8	0	3.6	1.9	(?)					
Maryland.....						.8	1.5	2.3	2.9					
Michigan.....	37.9	41.8	27.8	19.2	11.0	7.7	7.7	8.7	11.0	4.6				
Minnesota.....	2.2	1.7	1.3	3.5	1.7	.4	4	1.3	9	3.9				
Mississippi.....	.7			7	1.3			1.3						
Montana.....						4.4								
Nebraska.....	2.6	1.7	1.7	.8	2.5	(?)				(?)				
New Jersey.....	2.2	4.6	2.2	2.2	1.2	1.9	2.2	4.8	4.3					
New York ¹	2.1	1.4	.6	1.0	2.1	.2	1.7	1.5						
North Carolina.....	.4	1.2							(?)					
Pennsylvania.....	2.2	8.4	1.2	1.6	2.4	2.1	1.5	1.5		1.1	.5			
South Carolina.....	3.9	2.5	2.0	1.9	.6	3.9	2.5	2.0		2.6	2.0			
South Dakota.....	1.7													
Tennessee.....	3.4	1.9	1.5	2.8	.5	1.5	1.4	2.4	5.6	2.8				
Virginia.....	1.4	2.7	.9	1.4		.9		2.4	1.8	.9				
Wisconsin.....	2.9	3.6	4.5	1.2	2.4	1.6	1.6	1.7	2.4	3.6				

TUBERCULOSIS, ALL FORMS (31-37)

Alabama.....	91.8	88.1	81.3	86.5	78.7	82.8	76.4	74.2	69.7	73.0	84.0	85.2	101.2	
White.....	85.0	45.6	89.1	45.6	37.8	41.9	42.8	30.1	49.8	44.9	42.8	36.2		
Colored.....	159.4	167.4	159.4	163.5	155.6	151.0	139.8	140.3	164.8	125.3	147.4	172.2		
Arizona.....	449.2	481.9	395.3	350.2	223.6	220.7	260.8	277.2	340.3	347.8				
California.....	138.6	139.6	130.8	122.8	122.0	109.5	109.3	119.4		129.0				
Connecticut.....	64.5	66.0	61.5	61.7	61.0	52.6	48.8	50.4		53.5	58.2	67.9	66.4	
Florida.....							60.9	75.9						
White.....							25.5	47.7						
Colored.....							138.0	137.7						
Georgia.....	74.5	72.4	85.9	68.7	59.2	65.7	56.2	60.8	69.8					
Hawaii Territory.....	121.9	124.8	129.0	111.8	105.2	105.5	108.5	119.1	118.4	141.7	126.8			

¹ Exclusive of New York City.² No deaths.

Monthly State mortality statistics—Continued

TUBERCULOSIS, ALL FORMS (31-37)—continued

	1929										Corresponding month for—			
	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.		1928	1927	1926	1925
Illinois.....	98.4	70.7	73.9	68.3	64.3	54.1	59.1	---	59.1		74.3	72.9	69.7	70.2
Indiana.....	81.6	74.9	81.2	58.2	63.4	63.2	59.3	65.1	69.0		80.5	69.2	66.0	73.4
Iowa.....	40.6	37.3	---	35.9	30.4	33.6	24.7	27.2	29.6		38.8	---	---	---
Kansas.....	30.5	41.1	42.4	34.7	35.3	33.2	25.0	35.8	---		39.1	---	---	---
Louisiana.....	104.2	90.6	99.2	83.3	70.0	81.7	85.1	83.6	---		77.4	---	---	---
White.....	54.9	47.6	53.0	42.9	36.4	52.0	47.6	31.8	---		44.3	---	---	---
Colored.....	194.7	169.6	184.1	157.6	131.9	136.3	154.2	178.8	---		138.0	---	---	---
Maryland.....	---	---	---	---	92.5	76.8	91.8	88.1	116.6		---	---	---	---
White.....	---	---	---	67.0	70.2	55.6	68.5	63.6	76.3		---	---	---	---
Colored.....	---	---	---	268.8	203.6	188.3	214.2	216.6	323.5		---	---	---	---
Michigan.....	80.6	85.7	71.3	66.2	60.0	67.3	56.9	50.9	68.7		69.2	---	---	---
Minnesota.....	65.3	55.8	57.2	49.7	51.9	46.5	39.1	35.3	61.0		50.2	---	---	---
Mississippi.....	98.5	91.4	95.6	53.5	67.7	77.3	83.5	---	---		54.6	---	---	---
White.....	41.3	38.6	39.9	30.3	31.1	27.1	40.0	---	---		22.1	---	---	---
Colored.....	150.9	139.8	147.0	132.2	98.3	103.9	119.4	---	---		84.2	---	---	---
Montana.....	---	---	---	---	---	44.3	---	---	---		20.7	---	---	---
Nebraska.....	42.3	36.0	25.9	29.3	27.6	23.9	---	---	---		---	---	---	---
New Jersey.....	84.7	76.1	70.1	75.5	72.4	65.9	69.6	71.3	79.8		65.9	72.9	84.5	75.9
New York ¹	80.6	82.3	78.4	64.7	70.3	57.7	58.5	60.0	---		67.0	68.9	69.0	88.3
North Carolina.....	102.7	91.4	---	---	---	---	---	---	87.8		---	---	---	---
Pennsylvania.....	68.8	69.6	63.6	62.3	56.0	52.6	53.8	52.4	---		55.5	63.4	65.3	68.7
South Carolina.....	71.2	87.8	94.0	79.0	69.6	64.6	59.4	65.9	---		65.9	---	---	---
South Dakota.....	48.4	60.2	48.4	65.2	65.2	39.7	36.8	38.0	78.0		60.2	---	---	---
Tennessee.....	146.9	133.2	140.5	112.9	105.9	103.9	104.6	100.7	155.8		135.9	145.0	131.2	---
White.....	107.4	102.8	109.1	79.0	81.2	78.6	84.0	78.6	99.9		---	---	---	---
Colored.....	338.3	240.6	292.8	277.6	223.4	221.5	203.4	207.3	189.6		---	---	---	---
Virginia.....	93.6	96.9	78.4	82.3	76.8	74.2	78.6	79.4	80.5		88.3	---	---	---
White.....	53.6	58.8	45.7	49.3	48.7	45.3	52.5	52.9	67.0		---	---	---	---
Colored.....	128.3	190.8	164.1	108.7	150.5	141.9	147.2	148.7	159.8		143.9	---	---	---
Wisconsin.....	72.9	47.8	63.4	48.3	46.3	49.0	51.8	49.0	45.9		48.6	---	---	---

CANCER, ALL FORMS (43-49)

Alabama.....	45.0	48.2	54.7	50.8	44.4	53.4	57.2	53.0	53.5	50.5	58.6	81.6	57.3	---
White.....	55.8	52.6	53.6	58.9	40.6	59.4	59.0	57.2	53.3	48.4	59.8	57.0	---	---
Colored.....	40.9	30.6	55.9	35.6	51.4	42.3	52.7	45.0	54.1	54.1	56.6	40.7	---	---
Arizona.....	61.6	69.6	46.2	37.3	47.2	25.7	37.3	38.5	64.6	57.1	---	---	---	---
California.....	140.7	146.0	144.5	138.8	147.6	137.0	149.6	147.1	---	141.5	---	---	---	---
Connecticut.....	103.0	116.2	100.8	103.3	119.8	119.4	109.7	120.1	---	110.1	100.5	100.0	112.9	---
Florida.....	---	---	---	---	---	---	75.9	68.1	---	---	---	---	---	---
White.....	---	---	---	---	---	---	86.2	79.1	---	---	---	---	---	---
Colored.....	---	---	---	---	---	---	53.3	44.1	---	---	---	---	---	---
Georgia.....	36.1	39.7	50.1	44.5	47.4	47.9	51.8	44.4	49.3	---	---	---	---	---
Hawaii Territory.....	59.3	67.5	80.2	59.2	36.2	91.8	69.1	68.0	59.2	50.6	54.3	---	---	---
Indiana.....	101.9	110.9	90.0	107.1	84.0	112.2	101.6	96.9	112.7	100.5	102.0	96.5	105.8	---
Iowa.....	112.7	109.1	---	111.5	106.2	102.7	81.0	154.5	119.8	121.2	---	---	---	---
Kansas.....	96.8	86.6	94.2	93.7	100.7	88.2	87.3	101.4	---	104.1	---	---	---	---
Louisiana.....	77.4	75.5	63.0	62.8	69.4	71.1	80.9	65.5	---	64.3	---	---	---	---
White.....	73.2	86.7	66.5	62.5	69.0	74.2	80.2	66.5	---	59.7	---	---	---	---
Colored.....	85.0	64.8	56.6	63.4	70.2	65.5	82.2	63.7	---	72.6	---	---	---	---
Maryland.....	---	---	---	---	96.9	116.6	102.4	123.1	127.2	110.7	---	---	---	---
White.....	---	---	---	---	99.7	124.9	112.0	126.6	138.9	102.3	---	---	---	---
Colored.....	---	---	---	---	82.0	72.9	61.8	104.8	65.9	150.4	---	---	---	---
Michigan.....	98.3	80.0	86.7	100.5	102.8	95.1	95.1	99.6	90.8	96.4	---	---	---	---
Minnesota.....	112.2	98.6	96.5	97.3	110.3	113.5	121.5	105.5	108.6	110.7	---	---	---	---
Mississippi.....	51.6	52.6	61.1	38.8	50.0	49.6	47.3	---	---	40.3	---	---	---	---
White.....	57.0	55.2	78.4	44.1	62.0	49.9	62.0	---	---	56.5	---	---	---	---
Colored.....	46.8	50.4	45.5	34.0	39.0	49.3	33.9	---	---	42.7	---	---	---	---
Montana.....	---	---	---	---	---	86.4	---	---	---	99.4	---	---	---	---
Nebraska.....	100.2	101.2	100.2	102.2	72.8	93.3	---	---	---	119.9	102.7	113.6	114.5	---
New Jersey.....	105.7	110.9	117.8	123.3	104.5	123.6	113.7	110.2	119.3	115.5	117.6	120.4	128.5	---
New York ¹	117.9	128.4	119.1	121.6	125.9	125.9	130.5	125.2	---	100.7	99.3	99.7	87.8	---
Pennsylvania.....	96.0	98.0	91.0	100.4	93.4	90.8	92.6	93.6	---	47.0	81.0	---	---	---
South Carolina.....	86.6	49.1	43.1	43.6	30.6	33.3	46.1	39.8	---	---	---	---	---	---
South Dakota.....	74.8	60.2	69.1	66.9	71.9	83.0	80.3	53.6	68.6	87.0	---	---	---	---
Tennessee.....	63.2	53.6	56.9	62.1	58.8	63.7	51.8	73.9	62.6	66.4	64.4	---	---	---
White.....	62.2	50.5	52.8	61.3	56.2	62.2	53.9	72.8	65.3	---	---	---	---	---
Colored.....	68.2	68.8	76.8	66.0	71.5	71.0	41.2	79.5	49.5	---	---	---	---	---
Virginia.....	56.7	59.4	56.2	68.6	59.9	53.4	48.9	64.3	56.2	63.6	---	---	---	---
White.....	62.0	63.8	59.4	75.8	61.3	55.5	55.0	68.6	60.0	72.0	---	---	---	---
Colored.....	42.7	48.0	47.9	49.6	56.2	47.9	33.1	53.0	46.3	41.3	---	---	---	---
Wisconsin.....	104.7	104.9	96.8	111.2	117.6	125.7	119.6	107.1	108.4	111.2	---	---	---	---

¹ Exclusive of New York City.

Monthly State mortality statistics—Continued

DIABETES (57)

	1929										Corresponding month for—			
	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1928	1927	1926	1925	
Alabama.....	10.9	6.4	10.0	6.4	5.0	9.5	8.7	9.5	10.1	10.1	14.1	7.6	5.7	
White.....	12.3	5.6	12.3	4.9	5.6	11.6	6.3	11.6	10.5	11.9	16.8	8.9	.....
Colored.....	8.2	7.9	5.4	9.2	4.0	5.5	13.2	5.4	9.2	6.6	9.2	5.3	.....
Arizona.....	10.3	9.9	7.7	(²)	(²)	2.6	7.5	5.1	9.9	2.5	.....	.....	.....
California.....	21.4	18.1	19.0	20.4	21.4	19.5	21.2	24.6	.....	24.8	.....	.....	.....
Connecticut.....	14.1	17.2	11.9	15.1	12.2	18.5	23.7	11.9	.....	15.8	.....	.....	.....
Florida.....	.....	.....	.....	.....	.....	.....	14.2	10.3	.....	.....	.....	.....	.....
White.....	.....	.....	.....	.....	.....	.....	12.1	10.0	.....	.....	.....	.....	.....
Colored.....	.....	.....	.....	.....	.....	.....	18.7	11.0	.....	.....	.....	.....	.....
Georgia.....	6.5	6.3	7.6	10.3	.....	9.1	11.0	8.0	11.8	.....	.....	.....	.....
Hawaii Territory.....	13.9	16.9	17.4	19.7	3.3	17.0	19.7	3.4	13.2	6.7	7.2	.....	.....
Indiana.....	13.8	14.1	11.9	12.2	16.3	17.2	.....	15.3	17.4	14.8	.....	.....	.....
Iowa.....	18.0	21.3	.....	16.5	11.6	16.0	20.9	27.9	17.0	29.6	.....	.....	.....
Kansas.....	22.5	19.2	17.2	15.4	21.2	20.6	19.3	24.5	.....	15.3	.....	.....	.....
Louisiana.....	7.0	10.3	6.2	9.7	9.1	15.0	10.9	13.1	.....	11.9	.....	.....	.....
White.....	6.7	8.4	2.9	11.2	11.2	18.3	11.2	14.5	.....	15.4	.....	.....	.....
Colored.....	7.1	13.7	12.4	6.9	5.1	8.8	10.3	10.6	.....	5.3	.....	.....	.....
Maryland.....	.....	.....	.....	21.9	13.1	13.6	14.6	15.1	24.0	.....	.....	.....	.....
White.....	.....	.....	.....	20.8	13.0	11.7	16.5	16.1	23.4	.....	.....	.....	.....
Colored.....	.....	.....	.....	22.8	13.7	23.5	4.6	9.4	27.3	.....	.....	.....	.....
Michigan.....	21.2	23.3	19.3	20.3	17.4	18.0	15.4	18.0	20.8	26.4	.....	.....	.....
Minnesota.....	13.9	14.7	15.2	9.5	21.2	13.9	13.0	17.9	20.3	20.0	.....	.....	.....
Mississippi.....	6.8	7.2	2.0	8.6	4.6	4.1	8.5	.....	.....	6.6	.....	.....	.....
White.....	7.1	6.9	1.4	8.3	4.1	4.3	11.0	.....	.....	8.2	.....	.....	.....
Colored.....	6.5	7.6	2.6	8.8	5.0	3.9	6.3	.....	.....	5.0	.....	.....	.....
Montana.....	.....	.....	.....	.....	.....	8.9	.....	.....	.....	.....	.....	.....	.....
Nebraska.....	24.2	20.1	17.3	25.9	17.6	18.1	.....	.....	.....	19.0	.....	.....	.....
New Jersey.....	24.5	22.2	22.6	22.8	17.9	19.1	24.0	22.9	26.5	26.2	31.7	29.4	.....
New York ¹	22.9	27.1	22.3	25.4	20.1	20.9	25.8	24.1	.....	20.4	23.9	22.3	22.8
Pennsylvania.....	23.4	21.8	16.2	15.2	13.9	20.3	24.0	18.3	.....	21.3	19.4	19.3	18.4
South Carolina.....	5.2	7.0	3.3	10.7	11.4	9.1	5.7	6.5	.....	8.5	6.6	.....	.....
South Dakota.....	8.6	21.7	20.7	10.0	20.1	8.6	18.4	15.6	26.8	31.8	.....	.....	.....
Tennessee.....	9.2	8.0	9.2	8.0	8.9	10.7	7.5	13.1	14.6	8.5	.....	.....	.....
White.....	8.2	10.2	7.6	9.1	7.4	9.4	7.9	13.5	14.2	.....	.....	.....	.....
Colored.....	14.2	11.0	17.2	2.8	16.5	17.0	5.5	11.4	16.5	.....	.....	.....	.....
Virginia.....	10.9	7.8	7.1	10.1	10.1	11.3	10.5	9.9	19.7	13.3	.....	.....	.....
White.....	13.1	5.1	6.5	9.5	11.4	12.4	9.5	13.1	22.1	11.4	.....	.....	.....
Colored.....	5.1	14.9	8.6	11.6	6.6	8.5	13.2	1.7	13.2	18.2	.....	.....	.....

DISEASES OF THE NERVOUS SYSTEM (70-86)

Alabama.....	108.3	111.2	97.9	87.0	96.1	98.8	103.0	94.1	119.0	109.4	.....	.....	.....
White.....	97.0	99.5	79.7	69.4	78.5	81.1	89.0	78.9	95.6	100.9	.....	.....	.....
Colored.....	129.4	133.2	132.2	120.0	129.2	132.2	129.2	122.6	155.6	125.3	.....	.....	.....
Arizona.....	112.6	104.3	82.1	72.0	64.6	69.3	62.1	79.6	91.9	106.8	.....	.....	.....
California.....	143.4	125.0	139.9	130.8	118.9	118.9	114.5	127.1	.....	154.1	.....	.....	.....
Florida.....	.....	.....	.....	.....	.....	.....	107.6	119.9	.....	.....	.....	.....	.....
White.....	.....	.....	.....	.....	.....	.....	86.2	107.9	.....	.....	.....	.....	.....
Colored.....	.....	.....	.....	.....	.....	.....	154.6	146.0	.....	.....	.....	.....	.....
Iowa.....	144.3	134.3	.....	123.6	120.7	110.7	111.0	202.2	142.6	144.0	.....	.....	.....
Kansas.....	139.2	143.7	135.9	120.6	132.8	103.4	121.9	127.3	.....	161.7	.....	.....	.....
Louisiana.....	91.7	91.2	101.7	79.7	85.7	81.7	111.1	101.2	.....	106.1	.....	.....	.....
White.....	80.0	64.3	85.8	69.0	69.9	73.2	89.5	70.1	.....	80.9	.....	.....	.....
Colored.....	113.3	140.5	131.0	99.3	114.8	97.3	150.7	155.8	.....	152.2	.....	.....	.....
Maryland.....	.....	.....	.....	115.8	96.9	113.2	132.6	137.8	173.4	.....	.....	.....	.....
White.....	.....	.....	.....	114.5	94.5	113.8	126.6	124.4	155.2	.....	.....	.....	.....
Colored.....	.....	.....	.....	123.0	109.4	141.3	164.0	150.7	268.8	.....	.....	.....	.....
Michigan.....	138.6	145.2	126.1	115.2	135.9	120.1	129.5	130.1	136.7	161.8	.....	.....	.....
Minnesota.....	99.7	100.8	82.2	91.3	77.4	78.7	81.8	99.7	94.7	99.9	.....	.....	.....
Montana.....	.....	.....	.....	.....	.....	77.6	.....	.....	.....	.....	.....	.....	.....
Nebraska.....	108.9	120.4	106.3	77.8	92.8	91.6	.....	.....	.....	96.8	.....	.....	.....
New Jersey.....	128.3	112.5	96.5	103.5	88.7	107.6	108.8	117.8	130.0	118.9	123.1	145.3	152.4
New York ¹	150.4	160.3	119.7	125.9	118.9	126.7	137.1	140.6	.....	126.6	141.3	146.8	190.8
Pennsylvania.....	122.4	119.0	.....	96.0	83.0	96.7	104.2	106.9	.....	119.8	.....	.....	.....
South Dakota.....	96.8	83.6	81.2	70.2	68.7	83.0	87.0	74.3	123.8	130.5	.....	.....	.....
Tennessee.....	103.0	106.4	104.1	98.8	83.8	91.9	101.6	98.2	126.5	.....	.....	.....	.....
White.....	90.3	85.9	91.5	81.8	75.5	75.1	93.1	83.3	120.4	.....	.....	.....	.....
Colored.....	167.7	206.3	250.2	181.4	123.7	173.2	142.9	170.4	167.7	.....	.....	.....	.....
Virginia.....	125.7	108.4	108.7	111.6	86.0	105.4	104.7	110.6	116.8	119.8	.....	.....	.....
White.....	101.2	88.4	80.5	97.3	60.0	84.2	91.0	92.7	96.7	85.3	.....	.....	.....
Colored.....	189.9	180.4	158.0	148.9	153.8	160.6	140.6	157.2	163.7	210.0	.....	.....	.....

¹ Exclusive of New York City.² No deaths.

Monthly State mortality statistics—Continued

CEREBRAL HEMORRHAGE, APOPLEXY (74)

	1929									Corresponding month for—			
	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1928	1927	1926	1925
Alabama	63.7	68.4	58.6	55.3	55.8	69.0	60.9	57.7	67.7	65.6	68.9	64.8	54.4
White	54.3	58.9	44.9	42.8	40.3	56.5	51.2	49.2	58.2	65.9	62.7	61.3	-----
Colored	79.0	84.4	76.3	81.8	73.8	92.7	79.1	73.6	85.7	63.3	80.3	71.0	-----
Arizona	46.2	59.6	46.2	22.4	32.3	46.2	39.7	51.3	57.1	42.2	-----	-----	-----
California	100.9	91.7	95.3	93.8	89.9	81.2	86.6	92.7	-----	112.2	-----	-----	-----
Florida	-----	-----	-----	-----	-----	-----	87.0	84.5	-----	-----	-----	-----	-----
White	-----	-----	-----	-----	-----	-----	70.5	70.3	-----	-----	-----	-----	-----
Colored	-----	-----	-----	-----	-----	-----	125.3	115.7	-----	-----	-----	-----	-----
Georgia	58.1	67.6	77.5	69.5	59.6	69.9	-----	-----	-----	-----	-----	-----	-----
Hawaii Territory	48.8	50.6	45.3	72.4	55.9	57.8	69.1	23.8	59.2	67.6	65.2	-----	-----
Indiana	104.2	107.1	106.5	104.5	85.6	91.9	-----	105.3	122.7	140.1	123.3	113.1	106.5
Iowa	108.7	98.4	-----	88.7	89.7	85.7	86.8	147.9	99.9	106.2	-----	-----	-----
Kansas	110.8	112.9	106.8	93.0	102.7	81.6	95.6	98.1	-----	131.3	-----	-----	-----
Louisiana	61.2	62.2	61.8	50.1	51.3	59.9	76.7	66.1	-----	73.6	-----	-----	-----
White	51.1	44.8	49.1	44.8	39.2	53.0	63.4	49.1	-----	54.9	-----	-----	-----
Colored	79.6	94.2	84.9	60.0	73.7	72.6	101.1	97.3	-----	108.0	-----	-----	-----
Maryland	-----	-----	-----	88.9	72.9	84.3	105.6	96.4	128.8	-----	-----	-----	-----
White	-----	-----	-----	88.5	73.7	78.0	98.9	95.9	118.0	-----	-----	-----	-----
Colored	-----	-----	-----	91.1	68.3	117.7	141.3	98.9	173.1	-----	-----	-----	-----
Michigan	100.2	102.3	89.6	80.0	82.6	85.3	95.9	91.2	102.3	115.2	-----	-----	-----
Minnesota	71.4	77.9	63.0	64.0	58.8	56.8	60.6	78.7	74.0	74.4	-----	-----	-----
Mississippi	64.5	77.6	63.2	71.0	64.4	63.9	84.1	-----	-----	61.8	-----	-----	-----
White	59.8	66.2	58.4	55.2	52.4	62.7	78.6	-----	-----	62.0	-----	-----	-----
Colored	69.0	88.2	67.6	85.6	75.4	64.9	89.2	-----	-----	61.6	-----	-----	-----
Montana	-----	-----	-----	-----	-----	55.4	-----	-----	-----	-----	-----	-----	-----
Nebraska	82.1	92.8	72.6	60.2	71.1	71.7	-----	-----	-----	76.9	-----	-----	-----
New Jersey	90.1	85.1	67.2	75.5	67.8	76.7	80.1	89.2	103.5	-----	-----	-----	-----
New York	115.6	120.8	95.1	95.3	84.2	90.4	109.6	110.7	-----	107.2	107.2	112.3	149.0
Pennsylvania	88.4	87.5	71.7	70.0	64.5	71.9	77.7	82.8	-----	92.0	88.1	91.2	63.9
South Dakota	55.3	53.5	50.1	45.2	51.9	48.4	58.9	34.6	85.3	78.6	-----	-----	-----
Tennessee	55.9	69.6	59.3	53.2	52.7	55.9	63.1	63.7	77.6	-----	-----	-----	-----
White	45.8	53.4	51.6	47.1	47.1	48.7	58.5	51.0	70.4	-----	-----	-----	-----
Colored	105.2	148.6	96.7	82.5	79.7	90.9	85.2	125.0	112.7	-----	-----	-----	-----
Virginia	90.3	71.3	78.4	84.6	57.6	70.4	78.2	85.0	88.2	82.8	-----	-----	-----
White	73.1	57.5	63.4	74.6	41.1	51.6	69.5	69.2	72.0	56.9	-----	-----	-----
Colored	135.0	107.5	117.9	110.8	100.9	119.6	100.9	126.5	130.7	150.5	-----	-----	-----

DISEASES OF THE CIRCULATORY SYSTEM (87-93)

Alabama	141.4	149.2	134.3	132.3	138.7	130.0	148.7	152.3	175.3	151.5	-----	-----	-----
White	119.5	113.5	107.9	89.7	107.2	97.8	124.0	120.9	138.1	128.3	-----	-----	-----
Colored	182.6	216.2	183.9	212.3	197.8	190.8	195.1	211.2	245.2	195.1	-----	-----	-----
Arizona	112.9	86.9	130.0	129.2	62.1	100.1	114.3	156.0	166.4	253.4	-----	-----	-----
California	360.2	335.7	326.1	294.1	304.2	286.8	312.4	356.0	-----	397.0	-----	-----	-----
Florida	-----	-----	-----	-----	-----	-----	165.2	180.6	-----	-----	-----	-----	-----
White	-----	-----	-----	-----	-----	-----	160.3	180.7	-----	-----	-----	-----	-----
Colored	-----	-----	-----	-----	-----	-----	175.9	212.1	-----	-----	-----	-----	-----
Iowa	282.6	271.6	-----	222.1	190.6	231.0	240.6	340.1	295.8	329.8	-----	-----	-----
Kansas	198.9	198.0	179.0	160.4	158.5	175.0	182.9	196.3	-----	193.6	-----	-----	-----
Louisiana	209.6	195.0	195.9	196.8	178.1	175.3	201.7	217.8	-----	202.2	-----	-----	-----
White	164.8	148.3	154.2	149.2	140.8	128.2	150.1	180.2	-----	165.7	-----	-----	-----
Colored	292.0	280.9	272.6	284.3	246.7	262.0	296.3	286.7	-----	269.0	-----	-----	-----
Maryland	-----	-----	-----	239.7	140.4	219.8	241.9	263.7	280.5	-----	-----	-----	-----
White	-----	-----	-----	230.7	105.6	190.0	230.7	248.2	273.2	-----	-----	-----	-----
Colored	-----	-----	-----	282.5	231.6	282.5	300.7	282.5	314.4	-----	-----	-----	-----
Michigan	266.3	278.5	245.4	215.2	206.5	219.7	219.5	242.2	265.4	345.2	-----	-----	-----
Minnesota	178.8	189.5	176.1	171.3	153.1	161.4	168.3	175.2	208.1	209.5	-----	-----	-----
Montana	-----	-----	-----	-----	-----	130.6	-----	-----	-----	163.3	-----	-----	-----
Nebraska	173.7	209.1	146.9	168.2	130.5	176.3	-----	-----	-----	307.2	256.6	272.9	255.1
New Jersey	297.4	258.5	255.1	233.9	192.3	222.0	106.8	106.0	318.0	358.2	318.4	315.5	248.6
New York	369.9	341.2	297.2	301.3	305.2	304.7	337.7	347.9	-----	243.2	-----	-----	-----
Pennsylvania	259.7	248.0	217.5	206.7	190.9	201.2	237.3	254.1	-----	284.6	253.2	-----	-----
South Carolina	269.6	296.9	312.0	272.9	296.9	277.4	318.4	323.7	-----	-----	-----	-----	-----
South Dakota	134.8	160.6	115.8	95.3	148.9	100.2	128.8	133.1	225.8	-----	-----	-----	-----
Tennessee	134.6	149.2	149.8	142.6	120.0	134.2	135.1	134.7	176.0	-----	-----	-----	-----
White	116.2	132.3	119.1	113.0	97.4	111.5	109.6	112.7	155.6	-----	-----	-----	-----
Colored	235.9	231.1	298.5	285.8	219.9	244.2	258.4	241.4	274.8	-----	-----	-----	-----
Virginia	164.4	185.2	174.3	149.1	140.4	145.1	177.9	179.1	198.4	204.4	-----	-----	-----
White	150.9	159.9	145.0	130.8	105.5	121.5	157.4	162.0	175.1	180.7	-----	-----	-----
Colored	200.0	251.4	251.2	196.8	231.5	206.8	231.5	223.9	259.7	266.3	-----	-----	-----

† Exclusive of New York City.

Monthly State mortality statistics—Continued

DISEASES OF THE HEART (87-90)

	1929										Corresponding month for—			
	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.		1928	1927	1926	1925
Alabama.....	132.6	140.4	125.0	124.0	125.4	122.0	136.8	136.2	158.8		140.9	125.7	109.2	125.0
White.....	110.8	105.1	96.9	86.9	93.9	90.5	111.4	105.7	128.3		115.6	115.1	95.3	—
Colored.....	171.7	205.7	177.1	193.8	184.6	181.3	184.6	193.5	216.2		187.2	144.7	134.1	—
Arizona.....	112.9	79.5	120.6	119.2	96.9	84.7	104.3	151.4	141.6		231.0	—	—	—
California.....	317.0	299.0	280.3	258.7	267.5	259.6	263.9	312.4	—		344.9	—	—	—
Connecticut.....	194.3	100.9	155.0	170.0	154.3	153.5	187.1	162.4	—		198.3	148.8	175.0	214.0
Florida.....	—	—	—	—	—	—	151.0	171.6	—		—	—	—	—
White.....	—	—	—	—	—	—	144.5	160.7	—		—	—	—	—
Colored.....	—	—	—	—	—	—	165.8	195.6	—		—	—	—	—
Georgia.....	107.5	105.9	141.7	117.7	102.9	109.8	117.3	101.0	140.8		108.0	108.7	—	—
Hawaii Territory.....	132.5	141.7	118.5	92.1	102.0	119.1	95.4	136.1	108.5		108.0	108.7	—	—
Indiana.....	199.2	228.0	222.2	187.6	167.9	186.2	—	170.5	184.2		269.5	183.2	179.0	163.5
Iowa.....	251.1	239.6	—	197.4	167.3	200.5	200.5	903.0	197.4		292.9	—	—	—
Kansas.....	173.1	175.2	153.2	139.9	131.5	151.8	162.8	172.4	—		171.2	—	—	—
Louisiana.....	192.8	183.6	177.6	182.9	167.3	159.7	190.2	200.3	—		187.8	—	—	—
White.....	150.3	137.1	137.8	138.9	131.5	115.6	137.1	162.9	—		152.2	—	—	—
Colored.....	270.8	208.9	251.3	263.8	233.0	240.7	287.6	290.0	—		253.1	—	—	—
Maryland.....	—	—	—	204.0	199.6	183.7	218.6	224.4	254.3		—	—	—	—
White.....	—	—	—	198.6	184.7	174.8	208.1	216.9	245.4		—	—	—	—
Colored.....	—	—	—	232.4	278.0	230.7	273.4	263.7	296.2		—	—	—	—
Michigan.....	238.5	240.0	218.1	255.2	177.7	186.6	188.5	214.9	230.8		299.3	—	—	—
Minnesota.....	100.1	152.7	136.8	140.6	121.6	127.8	132.8	139.5	172.6		231.4	—	—	—
Mississippi.....	106.7	111.8	108.0	127.0	111.8	87.6	124.8	—	—		88.7	—	—	—
White.....	96.5	95.1	84.1	91.0	104.8	69.8	113.1	—	—		80.0	—	—	—
Colored.....	117.1	127.2	130.1	159.9	118.1	103.9	134.5	—	—		96.8	—	—	—
Montana.....	—	—	—	—	—	126.3	—	—	—		—	—	—	—
Nebraska.....	173.7	187.3	132.2	145.5	117.1	152.9	—	—	—		140.8	—	—	—
New Jersey.....	278.1	236.0	226.7	214.8	273.5	207.3	241.9	—	289.0		—	—	—	—
New York ¹	322.0	202.6	257.9	262.4	261.6	258.6	202.4	205.9	—		812.0	275.2	270.4	299.8
Pennsylvania.....	232.3	221.3	196.7	185.9	172.8	178.3	214.3	228.7	—		222.0	225.0	214.0	199.0
South Dakota.....	115.8	142.2	102.0	76.9	117.1	95.0	112.1	103.7	192.3		204.0	—	—	—
Tennessee.....	125.0	137.9	135.7	128.0	106.4	122.5	120.9	122.1	155.8		158.6	—	—	—
White.....	92.7	122.6	108.5	97.7	83.5	102.1	94.3	100.9	185.1		—	—	—	—
Colored.....	201.8	211.8	267.2	274.6	217.1	221.5	250.1	224.4	255.6		—	—	—	—
Virginia.....	149.3	171.0	156.4	129.5	121.6	129.0	158.7	164.4	180.2		188.4	—	—	—
White.....	134.5	145.4	129.3	121.3	89.1	107.8	137.8	146.9	168.0		169.1	—	—	—
Colored.....	188.0	238.2	227.3	186.9	206.7	184.6	213.4	210.2	238.2		241.5	—	—	—

DISEASES OF THE RESPIRATORY SYSTEM (97-107)

Alabama.....	102.6	84.7	61.0	87.1	40.7	42.1	68.6	80.1	142.3	141.4	—	—	—	—
White.....	84.7	63.1	48.5	21.5	34.3	30.8	58.9	72.4	117.7	114.2	—	—	—	—
Colored.....	136.2	125.3	84.5	60.7	52.7	40.3	87.0	111.7	188.5	192.5	—	—	—	—
Arizona.....	197.0	171.4	166.8	101.8	74.5	87.3	79.5	187.4	228.5	320.4	—	—	—	—
California.....	139.1	98.5	92.1	64.4	56.3	63.6	76.0	117.2	—	159.2	—	—	—	—
Florida.....	—	—	—	—	—	—	54.2	69.8	—	—	—	—	—	—
White.....	—	—	—	—	—	—	35.2	56.5	—	—	—	—	—	—
Colored.....	—	—	—	—	—	—	96.0	99.2	—	—	—	—	—	—
Iowa.....	82.2	71.3	—	43.2	35.4	47.6	54.8	88.9	110.6	159.5	—	—	—	—
Kansas.....	86.2	50.0	33.8	20.5	37.2	27.8	37.2	67.0	—	61.0	—	—	—	—
Louisiana.....	80.5	65.2	61.8	51.3	56.2	54.3	79.7	118.5	—	102.9	—	—	—	—
White.....	51.1	42.0	49.1	28.9	30.2	37.6	60.6	81.9	—	79.0	—	—	—	—
Colored.....	134.5	107.9	84.9	92.5	87.4	85.0	114.8	185.8	—	146.9	—	—	—	—
Maryland.....	—	—	—	66.1	53.2	61.0	96.9	116.7	161.0	—	—	—	—	—
White.....	—	—	—	34.7	37.3	48.4	74.6	98.7	137.0	—	—	—	—	—
Colored.....	—	—	—	168.6	130.7	127.1	209.6	263.7	287.1	—	—	—	—	—
Michigan.....	130.1	121.8	87.5	42.6	45.4	51.9	79.0	73.1	112.8	219.8	—	—	—	—
Minnesota.....	74.2	71.8	49.2	35.0	82.9	43.4	64.9	67.1	103.8	153.1	—	—	—	—
Montana.....	—	—	—	—	—	24.4	—	—	—	—	—	—	—	—
Nebraska.....	75.2	56.9	40.6	22.0	17.7	36.3	—	—	—	80.2	—	—	—	—
New Jersey.....	116.0	101.4	62.7	50.5	45.3	49.4	69.9	92.3	128.6	—	—	—	—	—
New York ¹	134.2	109.2	73.6	60.7	48.2	51.1	86.2	87.0	—	104.4	98.7	117.0	142.8	—
Pennsylvania.....	117.6	99.1	67.1	47.7	47.8	61.2	90.1	95.2	—	112.7	—	—	—	—
South Dakota.....	81.2	75.3	44.9	46.8	55.2	31.1	35.1	29.4	118.7	145.6	—	—	—	—
Tennessee.....	97.7	74.8	50.1	44.7	50.4	66.6	79.5	163.6	171.8	—	—	—	—	—
White.....	88.3	59.0	87.5	36.9	41.5	54.6	67.6	85.1	153.5	—	—	—	—	—
Colored.....	167.7	151.3	110.9	82.5	93.4	125.0	187.4	193.1	261.1	—	—	—	—	—
Virginia.....	79.9	71.8	41.6	85.2	88.4	41.1	62.2	89.3	184.9	113.9	—	—	—	—
White.....	61.4	53.7	30.7	81.0	26.5	26.8	43.0	—	194.8	65.4	—	—	—	—
Colored.....	128.2	119.1	70.1	46.3	69.5	78.0	112.5	162.1	216.0	162.1	—	—	—	—

¹ Exclusive of New York City.

Monthly State mortality statistics—Continued

PNEUMONIA, ALL FORMS (100, 101)

	1929										Corresponding month for—			
	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.		1928	1927	1926	1925
Alabama.....	97.9	79.8	53.4	32.5	34.8	31.7	56.7	75.7	129.5		131.2	143.0	93.7	157.0
White.....	80.4	60.3	41.8	21.7	28.0	32.6	47.7	62.8	108.6		104.4	136.3	85.7	-----
Colored.....	129.4	116.0	76.3	52.7	47.5	30.0	73.8	100.8	168.8		180.6	155.5	107.8	-----
Arizona.....	154.0	144.1	148.9	67.1	47.2	56.5	64.6	146.3	188.8		337.8	-----	-----	-----
California.....	119.4	83.5	76.9	54.8	45.2	47.8	62.5	100.4	-----		139.9	-----	-----	-----
Connecticut.....	104.5	86.8	54.1	43.8	35.2	44.5	66.7	69.7	-----		71.6	72.1	78.0	137.6
Florida.....	-----	-----	-----	-----	-----	-----	39.2	59.5	-----		-----	-----	-----	-----
White.....	-----	-----	-----	-----	-----	-----	26.7	47.7	-----		-----	-----	-----	-----
Colored.....	-----	-----	-----	-----	-----	-----	66.6	85.4	-----		-----	-----	-----	-----
Georgia.....	70.3	46.7	52.4	24.2	24.3	39.1	47.1	60.0	102.9		-----	-----	-----	-----
Hawaii Territory.....	217.5	202.4	139.4	121.7	157.9	105.5	102.0	95.3	92.1		141.7	210.1	-----	-----
Illinois.....	92.2	86.6	57.6	34.2	30.7	36.2	50.9	-----	111.8		210.5	107.8	104.6	91.2
Indiana.....	53.5	85.6	50.2	24.8	38.2	55.2	71.9	77.4	134.6		233.2	117.0	120.6	139.6
Iowa.....	71.7	40.2	-----	36.4	26.7	37.6	45.1	82.9	95.5		145.0	-----	-----	-----
Kansas.....	76.9	41.1	23.9	13.5	28.2	23.2	30.2	61.7	-----		50.4	-----	-----	-----
Louisiana.....	68.0	52.6	58.0	43.5	45.9	48.7	67.0	105.4	-----		88.6	-----	-----	-----
White.....	41.4	31.7	45.3	24.2	29.8	32.8	50.4	71.3	-----		67.4	-----	-----	-----
Colored.....	116.8	90.8	81.4	78.8	75.4	77.9	97.6	168.1	-----		127.4	-----	-----	-----
Maryland.....	-----	-----	-----	46.6	45.2	52.0	89.6	102.4	150.1		-----	-----	-----	-----
White.....	-----	-----	-----	27.8	31.2	41.2	66.8	75.3	130.1		-----	-----	-----	-----
Colored.....	-----	-----	-----	145.8	118.5	108.3	205.0	244.8	255.2		-----	-----	-----	-----
Michigan.....	114.2	105.7	73.4	33.6	33.9	41.3	62.8	61.0	93.4		190.3	-----	-----	-----
Minnesota.....	68.4	65.3	39.8	28.1	29.4	36.2	56.2	60.3	101.2		147.5	-----	-----	-----
Mississippi.....	63.2	38.8	26.5	15.1	19.7	38.7	43.4	-----	-----		28.9	-----	-----	-----
White.....	48.4	41.4	17.1	13.8	23.4	44.2	38.6	-----	-----		20.2	-----	-----	-----
Colored.....	76.8	30.5	35.0	16.4	16.3	33.8	47.8	-----	-----		31.4	-----	-----	-----
Montana.....	-----	-----	-----	-----	-----	17.7	-----	-----	-----		23.3	-----	-----	-----
Nebraska.....	65.7	51.0	35.4	16.7	11.7	20.4	-----	-----	-----		-----	-----	-----	-----
New Jersey.....	99.4	91.2	51.6	44.1	37.0	39.8	61.3	82.5	116.8		160.5	61.2	76.8	79.8
New York ¹	116.7	92.4	62.8	37.6	39.3	42.5	71.8	72.9	-----		89.2	83.0	100.2	118.1
North Carolina.....	113.5	81.0	-----	-----	-----	-----	-----	158.7	-----		151.9	-----	-----	-----
Pennsylvania.....	97.7	85.0	52.7	38.9	37.5	49.3	75.3	80.9	-----		97.1	92.2	120.0	140.0
South Carolina.....	90.7	77.1	62.0	37.9	44.8	58.1	70.7	78.3	-----		96.0	89.7	-----	-----
South Dakota.....	62.2	68.6	34.6	36.8	46.8	25.9	26.8	29.4	95.3		117.1	-----	-----	-----
Tennessee.....	86.6	66.4	39.4	33.9	41.4	55.9	66.4	90.9	154.8		122.4	163.0	116.9	-----
White.....	73.9	53.4	31.7	28.4	34.1	46.9	55.6	75.7	137.4		-----	-----	-----	-----
Colored.....	147.8	129.3	76.8	60.5	79.7	99.4	118.2	164.7	239.1		-----	-----	-----	-----
Virginia.....	68.0	60.4	36.9	26.5	28.8	31.7	52.1	77.0	120.7		98.3	-----	-----	-----
White.....	50.9	44.9	24.1	24.0	20.2	20.2	36.0	53.6	92.3		80.3	-----	-----	-----
Colored.....	112.8	100.9	59.8	33.1	51.3	61.5	94.3	138.4	195.2		145.5	-----	-----	-----
Wisconsin.....	84.5	78.9	49.0	30.0	29.9	38.3	0	69.6	92.5		164.3	-----	-----	-----

DISEASES OF THE DIGESTIVE SYSTEM (108-127)

Alabama.....	61.9	106.2	147.5	139.1	107.5	100.7	67.7	60.5	63.1	67.7	-----	-----	-----	-----
White.....	46.3	101.6	143.4	36.0	100.2	92.0	64.5	51.4	61.0	66.6	-----	-----	-----	-----
Colored.....	91.3	104.7	155.3	145.0	121.3	117.2	73.8	77.7	67.2	69.9	-----	-----	-----	-----
Arizona.....	79.6	201.2	264.4	139.1	206.2	238.7	166.4	92.4	109.3	106.8	-----	-----	-----	-----
California.....	94.5	92.0	103.9	112.9	103.6	111.1	109.1	103.6	-----	90.0	-----	-----	-----	-----
Florida.....	-----	-----	-----	-----	-----	-----	93.5	104.3	-----	-----	-----	-----	-----	-----
White.....	-----	-----	-----	-----	-----	-----	76.5	99.2	-----	-----	-----	-----	-----	-----
Colored.....	-----	-----	-----	-----	-----	-----	130.0	115.7	-----	-----	-----	-----	-----	-----
Hawaii Territory.....	198.7	182.2	174.3	180.9	157.9	132.7	115.1	193.9	138.1	145.1	130.4	-----	-----	-----
Iowa.....	66.6	62.1	-----	64.9	62.1	66.6	62.1	74.9	84.9	62.6	-----	-----	-----	-----
Kansas.....	84.2	62.9	76.3	85.3	91.1	82.2	80.9	67.6	-----	76.9	-----	-----	-----	-----
Louisiana.....	78.6	112.3	128.5	122.0	105.7	111.1	106.3	102.9	-----	87.4	-----	-----	-----	-----
White.....	56.9	87.7	86.7	106.3	80.7	86.7	82.1	97.3	-----	65.5	-----	-----	-----	-----
Colored.....	118.6	157.6	205.3	152.4	140.5	155.8	150.7	113.3	-----	127.4	-----	-----	-----	-----
Maryland.....	-----	-----	-----	-----	96.2	142.8	115.2	96.9	75.3	79.4	-----	-----	-----	-----
White.....	-----	-----	-----	-----	80.7	124.9	99.5	83.3	67.2	77.2	-----	-----	-----	-----
Colored.....	-----	-----	-----	-----	173.1	236.9	193.1	168.6	117.7	91.1	-----	-----	-----	-----
Michigan.....	80.6	90.5	89.0	78.2	95.7	128.3	101.6	74.5	83.1	90.8	-----	-----	-----	-----
Minnesota.....	63.5	67.9	59.0	64.5	64.0	63.0	56.2	60.8	73.5	58.4	-----	-----	-----	-----
Montana.....	-----	-----	-----	-----	-----	88.6	-----	-----	-----	-----	-----	-----	-----	-----
Nebraska.....	73.4	71.9	55.3	71.1	80.1	73.4	-----	74.2	69.9	86.4	-----	-----	-----	-----
New Jersey.....	76.1	75.8	73.6	74.6	71.8	92.7	79.5	70.3	-----	74.6	57.2	62.1	59.9	-----
New York ¹	69.9	71.5	62.0	64.7	70.0	93.6	80.2	70.3	-----	72.4	80.4	71.9	89.8	-----
Pennsylvania.....	75.0	61.4	62.9	71.5	87.8	120.3	82.3	65.5	-----	73.8	-----	-----	-----	-----
South Dakota.....	58.8	78.6	44.9	58.5	80.3	95.0	58.5	39.7	78.6	87.0	-----	-----	-----	-----
Tennessee.....	70.0	71.1	110.9	171.8	133.2	98.2	101.2	74.9	68.2	-----	-----	-----	-----	-----
White.....	55.1	63.0	142.1	160.7	127.2	90.9	80.1	65.1	63.6	-----	-----	-----	-----	-----
Colored.....	142.1	110.0	104.4	225.4	162.2	133.5	159.4	122.1	90.7	-----	-----	-----	-----	-----
Virginia.....	52.0	60.4	102.5	104.3	90.7	60.9	64.9	54.8	54.9	51.7	-----	-----	-----	-----
White.....	47.7	36.7	73.8	87.9	87.5	50.4	56.9	50.9	42.3	39.8	-----	-----	-----	-----
Colored.....	63.2	122.4	177.7	147.2	130.7	97.4	86.0	64.9	87.7	82.7	-----	-----	-----	-----

¹ Exclusive of New York City.

Monthly State mortality statistics—Continued

DIARRHEA AND ENTERITIS UNDER 2 YEARS (113)

	1929										Corresponding month for—			
	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.		1928	1927	1926	1925
Alabama	12.4	40.8	64.8	62.7	33.4	28.4	22.0	12.8	13.3	13.3	13.3	18.8	10.4	13.6
White	5.8	38.5	65.9	67.3	30.8	26.8	21.0	11.6	12.6	13.8	19.7	10.3	-----	-----
Colored	24.5	44.8	62.7	54.1	38.2	31.3	23.7	15.0	14.5	13.2	17.1	10.5	-----	-----
Arizona	28.2	131.7	202.8	186.6	189.1	148.9	114.3	43.6	29.8	47.2	-----	-----	-----	-----
California	11.2	17.6	23.0	28.4	27.1	27.0	23.0	19.2	-----	15.0	-----	-----	-----	-----
Connecticut	5.2	11.5	8.2	5.0	17.9	-----	(1)	13.3	-----	4.5	17.6	7.8	8.7	-----
Florida	-----	-----	-----	-----	-----	-----	18.4	14.7	-----	-----	-----	-----	-----	-----
White	-----	-----	-----	-----	-----	-----	14.6	12.6	-----	-----	-----	-----	-----	-----
Colored	-----	-----	-----	-----	-----	-----	26.7	19.3	-----	-----	-----	-----	-----	-----
Georgia	12.2	22.8	35.3	29.8	27.6	14.8	12.0	14.4	7.7	-----	-----	-----	-----	-----
Hawaii Territory	-----	-----	-----	-----	-----	98.7	65.8	78.3	82.2	-----	-----	-----	-----	-----
Indiana	5.7	7.4	10.3	25.6	47.1	43.7	28.7	6.1	7.8	5.2	4.5	7.2	10.3	-----
Iowa	4.5	2.9	-----	3.9	5.8	4.5	1.9	7.3	2.9	1.9	-----	-----	-----	-----
Kansas	7.3	4.5	6.0	12.2	19.2	24.5	15.4	7.3	-----	12.6	-----	-----	-----	-----
Louisiana	22.4	34.4	49.3	34.4	31.4	29.9	29.6	22.5	-----	23.7	-----	-----	-----	-----
White	15.4	21.4	27.0	28.9	22.4	19.3	21.5	21.2	-----	10.3	-----	-----	-----	-----
Colored	35.4	58.2	90.3	44.5	48.0	49.6	44.5	24.8	-----	31.8	-----	-----	-----	-----
Maryland	-----	-----	-----	-----	-----	-----	19.7	-----	-----	-----	-----	-----	-----	-----
White	-----	-----	-----	-----	-----	-----	16.5	-----	-----	-----	-----	-----	-----	-----
Colored	-----	-----	-----	-----	-----	-----	36.5	-----	-----	-----	-----	-----	-----	-----
Michigan	11.1	12.6	11.4	10.0	23.1	44.3	28.0	10.3	9.2	13.3	-----	-----	-----	-----
Minnesota	3.6	3.9	3.1	2.2	6.5	3.6	4.3	2.7	4.8	3.0	-----	-----	-----	-----
Mississippi	12.2	32.9	55.0	50.0	25.0	18.3	22.4	-----	-----	22.4	-----	-----	-----	-----
White	14.3	28.9	59.8	49.6	15.2	18.5	22.1	-----	-----	19.4	-----	-----	-----	-----
Colored	10.4	36.0	105.4	50.4	33.9	18.2	22.6	-----	-----	25.1	-----	-----	-----	-----
Montana	-----	-----	-----	-----	-----	19.9	-----	-----	-----	-----	-----	-----	-----	-----
Nebraska	5.2	3.3	3.5	3.3	12.5	6.9	-----	-----	-----	17.8	-----	-----	-----	-----
New Jersey	10.5	7.7	6.4	10.2	17.8	29.6	19.4	11.8	10.2	12.6	9.4	16.4	12.8	-----
New York ¹	7.9	8.7	7.2	6.0	13.9	23.9	10.7	9.4	-----	10.0	13.7	14.0	19.8	-----
North Carolina	11.2	38.5	-----	-----	-----	-----	-----	-----	15.6	30.1	-----	-----	-----	-----
Pennsylvania	12.3	10.2	8.6	15.6	28.4	52.2	26.4	15.0	-----	15.8	22.4	22.9	25.4	-----
South Dakota	6.9	3.3	1.7	1.7	10.0	17.3	3.3	1.7	5.0	8.4	-----	-----	-----	-----
Tennessee	6.8	10.4	38.9	77.7	53.6	36.5	20.2	12.6	12.7	18.4	14.2	14.8	-----	-----
White	5.3	7.4	38.7	74.4	55.6	38.7	27.8	13.5	14.8	-----	-----	-----	-----	-----
Colored	14.2	24.8	39.8	93.5	44.0	25.6	35.7	8.5	2.7	-----	-----	-----	-----	-----
Virginia	3.3	12.3	37.3	50.3	37.0	27.9	16.5	11.8	9.6	7.3	-----	-----	-----	-----
White	3.3	6.3	18.9	41.7	32.9	26.8	17.1	10.4	7.0	4.4	-----	-----	-----	-----
Colored	3.4	28.1	85.5	72.8	48.0	30.8	14.9	15.4	16.5	14.9	-----	-----	-----	-----
Wisconsin	11.9	14.8	9.5	6.8	8.0	9.4	8.8	6.6	13.6	13.6	-----	-----	-----	-----

NEPHRITIS (128,129)

Alabama	91.7	104.3	96.9	95.2	92.9	76.1	90.3	100.3	125.4	98.8	-----	-----	-----	-----
White	79.7	80.6	71.0	84.1	79.2	60.1	70.1	81.8	105.1	91.8	-----	-----	-----	-----
Colored	114.4	149.0	145.8	116.0	118.7	106.3	154.3	121.3	163.5	112.1	-----	-----	-----	-----
Arizona	53.9	30.7	30.8	39.7	32.3	35.0	22.4	33.4	40.7	44.7	-----	-----	-----	-----
California	123.2	106.7	108.7	98.5	91.0	84.9	101.0	104.1	-----	130.1	-----	-----	-----	-----
Connecticut	68.2	116.2	54.9	46.6	35.2	56.3	70.3	60.8	-----	67.1	-----	-----	-----	-----
Florida	-----	-----	-----	-----	-----	-----	124.8	123.3	-----	-----	-----	-----	-----	-----
White	-----	-----	-----	-----	-----	-----	100.8	118.0	-----	-----	-----	-----	-----	-----
Colored	-----	-----	-----	-----	-----	-----	175.9	135.0	-----	-----	-----	-----	-----	-----
Georgia	117.8	111.1	123.1	115.8	111.8	119.3	126.8	125.0	137.5	-----	-----	-----	-----	-----
Indiana	95.0	92.7	74.3	73.8	63.8	70.9	-----	83.5	87.1	96.4	74.8	75.4	72.3	-----
Iowa	61.6	56.7	-----	42.2	36.9	52.1	41.2	61.0	46.6	56.3	-----	-----	-----	-----
Kansas	94.8	93.0	92.8	77.6	69.9	80.2	75.7	100.1	-----	108.7	-----	-----	-----	-----
Louisiana	112.3	115.9	120.4	99.0	108.7	106.7	118.3	121.0	-----	124.2	-----	-----	-----	-----
White	84.8	70.3	60.6	82.1	88.6	60.6	94.2	101.2	-----	99.2	-----	-----	-----	-----
Colored	162.8	183.3	175.2	130.2	145.6	136.9	162.7	157.5	-----	160.9	-----	-----	-----	-----
Maryland	-----	-----	-----	123.9	133.3	121.2	157.4	144.6	169.0	-----	-----	-----	-----	-----
White	-----	-----	-----	117.1	127.5	110.2	148.3	138.9	166.8	-----	-----	-----	-----	-----
Colored	-----	-----	-----	191.4	154.9	107.8	205.0	174.2	182.3	-----	-----	-----	-----	-----
Michigan	73.4	67.4	72.6	59.8	62.6	62.8	61.0	60.9	78.7	82.3	-----	-----	-----	-----
Minnesota	54.1	49.7	48.7	42.4	39.4	40.2	46.7	57.7	63.6	71.4	-----	-----	-----	-----
Mississippi	112.1	70.3	117.5	106.6	92.0	99.9	120.3	-----	-----	112.4	-----	-----	-----	-----
White	89.6	101.2	74.1	84.1	74.5	68.4	90.3	-----	-----	78.0	-----	-----	-----	-----
Colored	128.5	132.7	147.0	127.2	108.1	128.5	139.5	-----	-----	143.3	-----	-----	-----	-----
Montana	-----	-----	-----	-----	-----	68.7	-----	-----	-----	-----	-----	-----	-----	-----
Nebraska	57.0	51.0	51.8	56.9	51.8	45.8	-----	-----	-----	31.1	-----	-----	-----	-----
New Jersey	104.4	102.6	101.3	85.7	78.0	89.8	99.5	93.0	112.5	118.9	111.5	108.5	109.2	-----
New York ¹	124.1	111.0	103.4	91.0	90.3	94.7	102.8	99.8	-----	99.6	112.2	113.0	128.0	-----
Pennsylvania	102.3	105.8	88.6	63.9	80.7	85.4	98.4	102.6	-----	109.3	97.8	106.0	105.0	-----
South Dakota	31.1	35.1	36.3	38.5	51.9	32.8	30.1	41.5	68.5	63.6	-----	-----	-----	-----
Tennessee	77.3	69.2	71.0	73.9	69.6	70.4	73.9	72.9	83.8	-----	-----	-----	-----	-----
White	67.5	62.5	59.8	57.9	60.2	64.5	60.2	64.5	75.5	-----	-----	-----	-----	-----
Colored	125.1	101.8	125.1	151.2	115.4	133.5	140.2	113.6	120.9	-----	-----	-----	-----	-----
Virginia	89.8	74.1	91.7	87.4	88.2	95.4	89.6	95.4	114.8	112.0	-----	-----	-----	-----
White	79.7	67.0	81.0	88.5	72.7	78.4	81.5	84.2	93.5	105.5	-----	-----	-----	-----
Colored	116.2	92.6	119.6	120.8	129.0	140.1	110.8	124.8	170.4	129.0	-----	-----	-----	-----

¹ Exclusive of New York City.² No deaths reported.

Monthly State mortality statistics—Continued

FEDERAL STATE (143-150)

	1929									Corresponding month for—			
	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1928	1927	1926	1925
Alabama.....	23.8	23.9	29.0	12.4	25.2	23.2	18.3	17.0	15.6	16.5	18.8	17.5	17.7
White.....	17.4	19.6	20.3	8.4	20.3	13.8	12.6	11.6	13.3	14.0	18.9	14.0	-----
Colored.....	35.4	31.6	45.0	19.8	34.3	40.9	20.0	27.2	19.8	21.1	18.4	23.7	-----
Arizona.....	12.8	12.4	12.8	5.0	14.9	7.7	5.0	2.6	5.0	7.5	-----	-----	-----
California.....	12.8	10.3	7.7	11.4	9.6	6.7	8.8	10.1	-----	7.7	-----	-----	-----
Connecticut.....	4.4	5.0	12.6	8.6	8.6	3.7	8.6	9.6	-----	6.0	8.4	13.3	5.6
Florida.....	-----	-----	-----	-----	-----	-----	20.0	17.2	-----	-----	-----	-----	-----
White.....	-----	-----	-----	-----	-----	-----	19.4	20.1	-----	-----	-----	-----	-----
Colored.....	-----	-----	-----	-----	-----	-----	21.3	11.0	-----	-----	-----	-----	-----
Georgia.....	14.8	19.5	13.3	13.2	18.0	22.0	18.7	15.6	18.4	-----	-----	-----	-----
Indiana.....	10.7	12.2	15.3	10.2	11.9	10.7	7.4	9.2	13.7	8.9	9.7	10.6	9.1
Iowa.....	10.5	8.2	-----	8.2	8.2	11.0	7.3	7.3	7.3	9.7	-----	-----	-----
Kansas.....	10.6	11.5	16.6	12.2	12.2	5.3	7.1	8.6	-----	12.6	-----	-----	-----
Louisiana.....	25.6	21.1	16.8	21.7	25.4	25.0	19.3	21.2	-----	20.0	-----	-----	-----
White.....	25.1	16.8	10.6	12.1	17.7	16.4	16.8	18.3	-----	21.2	-----	-----	-----
Colored.....	26.5	29.1	28.3	39.4	39.4	40.7	24.0	26.5	-----	17.7	-----	-----	-----
Maryland.....	-----	-----	-----	11.7	14.6	7.5	7.3	6.0	6.6	-----	-----	-----	-----
White.....	-----	-----	-----	8.7	13.0	6.3	5.2	5.4	6.9	-----	-----	-----	-----
Colored.....	-----	-----	-----	27.3	22.8	14.1	18.2	9.4	4.6	-----	-----	-----	-----
Michigan.....	17.2	11.0	13.5	10.9	10.0	10.6	11.0	10.9	12.6	12.3	-----	-----	-----
Minnesota.....	8.5	5.2	7.2	4.8	5.2	4.5	2.9	4.5	8.7	8.7	-----	-----	-----
Montana.....	-----	-----	-----	-----	-----	-----	8.9	-----	-----	-----	-----	-----	-----
Nebraska.....	6.9	10.9	14.7	10.0	6.7	9.5	-----	-----	-----	6.9	-----	-----	-----
New Jersey.....	10.5	10.2	8.9	9.2	10.8	8.9	8.0	8.3	9.6	-----	-----	-----	-----
New York.....	4.1	11.2	8.5	8.3	6.8	8.8	8.5	6.8	-----	8.7	11.5	7.9	10.0
South Dakota.....	15.6	6.7	6.0	13.4	11.7	8.6	13.4	6.9	5.0	10.0	-----	-----	-----
Tennessee.....	20.9	16.0	8.3	17.4	15.5	13.1	12.2	16.5	17.4	7.1	5.2	-----	-----
White.....	20.0	13.6	8.8	15.3	13.1	13.5	7.4	14.7	13.6	-----	-----	-----	-----
Colored.....	25.5	27.5	5.7	27.5	27.5	11.4	35.7	25.6	85.7	-----	-----	-----	-----
Virginia.....	15.1	17.8	13.7	13.3	18.3	9.0	10.1	6.6	13.7	18.2	-----	-----	-----
White.....	10.5	10.1	11.1	10.7	9.5	5.9	7.0	5.2	7.6	12.6	-----	-----	-----
Colored.....	27.3	38.0	20.5	19.9	23.2	17.1	18.2	10.3	20.8	33.1	-----	-----	-----

¹ Exclusive of New York City.

COURT DECISION RELATING TO PUBLIC HEALTH

Issuance by local registrar of certified copy of death certificate.—(Alabama Supreme Court; *Scott v. Culpepper*, 125 So. 643; decided Jan. 16, 1930.) The statute relating to the registration of births and deaths provided for the filing of death certificates with the local registrar and the entry of same by such registrar in a record book. It was required that this record book, when filled, be delivered by the local registrar to the probate judge for keeping as a permanent local record. Original certificates of births and deaths for any one month were not required to be transmitted by the local registrar to the State registrar until the 10th of the following month. Certified copies of the records of births and deaths registered could be obtained from the State registrar.

Other statutes gave a citizen a right to inspect and take a copy of any public writing, except as otherwise expressly provided, and also set forth that every public officer having the custody of a public writing, which a citizen had a right to inspect, was bound to give him a certified copy on demand and on payment of the legal fees.

A death certificate was filed and entered on the record book of a local registrar. On the same date and after its record, a certified

copy was demanded and the legal fee therefor tendered. In mandamus proceedings to compel the local registrar to issue such certified copy, the trial court dismissed the petition on the theory that such copy should be obtained either from the State registrar or from the office of the probate judge. But the supreme court, on appeal, pointed out that there could be a considerable period of time during which the local registrar was sole custodian of certificates and the record book in his office the sole record thereof. The supreme court held a local registrar to be a public officer and the record made by such registrar to be a public writing, and decided that the petitioner was entitled to a certified copy from the local registrar, saying:

The death certificate entered on the record book of the local registrar was a public writing in the custody of such registrar as a public officer, subject to inspection by any citizen, and to which a certified copy is due to be given upon demand and the payment of the legal fee therefor.

DEATHS DURING WEEK ENDED FEBRUARY 22, 1930

Summary of information received by telegraph from industrial insurance companies for the week ended February 22, 1930, and corresponding week of 1929. (From the Weekly Health Index, February 26, 1930, issued by the Bureau of the Census, Department of Commerce)

	Week ended Feb. 22, 1930	Corresponding week, 1929
Policies in force.....	75, 485, 684	73, 314, 879
Number of death claims.....	15, 322	14, 838
Death claims per 1,000 policies in force, annual rate.....	10. 6	10. 6

Deaths from all causes in certain large cities of the United States during the week ended February 22, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index, February 26, 1930, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Feb. 22, 1930		Annual death rate per 1,000, corre- sponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Feb. 22, 1930 ¹
	Total deaths	Death rate ¹		Week ended Feb. 22, 1930	Corre- sponding week, 1929	
Total (62 cities).....	7, 061	14. 4	14. 5	795	803	¹ 72
Akron.....	42			4	6	37
Albany ⁴	39	18. 9	15. 6	3	0	66
Atlanta.....	71	14. 5	18. 2	11	8	116
White.....	34			4	3	127
Colored.....	37	(⁵)	(⁹)	7	5	111
Baltimore ⁴	240	15. 1	16. 5	19	21	65
White.....	185			12	15	52
Colored.....	55	(⁵)	(⁹)	7	6	113
Birmingham.....	67	15. 7	15. 0	7	10	65
White.....	31			3	4	46
Colored.....	36	(⁵)	(⁹)	4	6	95
Boston.....	260	17. 0	16. 2	28	30	79
Bridgeport.....	37			4	5	68

See footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended February 22, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929—Continued

City	Week ended Feb. 22, 1930		Annual death rate per 1,000, corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Feb. 22, 1930
	Total deaths	Death rate		Week ended Feb. 22, 1930	Corresponding week, 1929	
Buffalo.....	157	14.7	14.6	16	10	71
Cambridge.....	18	7.5	12.8	0	4	0
Camden.....	33	12.7	11.9	2	1	36
Canton.....	26	11.6	8.5	2	4	50
Chicago.....	812	23.4	12.7	84	61	74
Cincinnati.....	170	10.8	12.9	14	17	83
Cleveland.....	210	13.4	16.6	22	45	66
Columbus.....	77	13.4	16.6	7	7	68
Dallas.....	73	17.5	14.6	7	5	-----
White.....	61			6	4	-----
Colored.....	12	(⁵)	(⁵)	1	1	-----
Dayton.....	42	11.9	11.0	4	3	59
Denver.....	104	18.4	15.2	9	5	94
Des Moines.....	35	12.0	15.1	6	4	104
Detroit.....	413	15.6	13.1	70	56	106
Duluth.....	24	10.7	13.4	3	0	81
El Paso.....	34	15.0	19.0	3	13	-----
Erie.....	20			2	4	43
Fall River.....	44	17.1	15.1	6	5	137
Flint.....	26	9.1	14.7	8	4	93
Fort Worth.....	42	12.8	10.7	5	8	-----
White.....	31			3	3	-----
Colored.....	11	(⁵)	(⁵)	2	5	-----
Grand Rapids.....	37	11.7	11.4	2	2	30
Houston.....	87			3	10	-----
White.....	60			3	7	-----
Colored.....	27	(⁵)	(⁵)	0	3	-----
Indianapolis.....	128	17.5	15.1	5	7	37
White.....	109			5	6	43
Colored.....	19	(⁵)	(⁵)	0	1	0
Jersey City.....	56	13.8	16.5	5	14	26
Kansas City, Kans.....	37	16.3	19.0	6	4	142
White.....	25			4	4	106
Colored.....	12	(⁵)	(⁵)	2	0	435
Kansas City, Mo.....	115	15.3	16.4	6	11	47
Knoxville.....	27	13.4	8.4	3	2	70
White.....	20			2	2	52
Colored.....	7	(⁵)	(⁵)	1	0	247
Los Angeles.....	282			19	30	58
Louisville.....	91	14.4	16.8	6	9	52
White.....	67			3	8	80
Colored.....	24	(⁵)	(⁵)	3	1	217
Lowell.....	32			6	0	142
Lynn.....	24	11.9	13.8	2	2	51
Memphis.....	78	21.4	17.3	3	5	36
White.....	32			1	1	18
Colored.....	46	(⁵)	(⁵)	2	7	67
Minneapolis.....	91	10.4	13.2	10	15	65
Nashville.....	53	19.8	15.7	4	5	62
White.....	33			3	3	62
Colored.....	17	(⁵)	(⁵)	1	2	63
New Bedford.....	25			4	5	103
New Haven.....	56	15.5	10.5	3	6	58
New Orleans.....	152	19.7	24.2	10	20	58
White.....	84			4	10	35
Colored.....	68	(⁵)	(⁵)	6	10	101
New York.....	1,615	14.0	14.7	152	176	77
Bronx Borough.....	215	11.8	12.3	24	25	56
Brooklyn Borough.....	570	12.9	12.7	67	55	71
Manhattan Borough.....	637	19.0	20.2	74	69	121
Queens Borough.....	159	9.7	10.3	14	23	41
Richmond Borough.....	34	11.8	10.7	3	4	56
Newark, N. J.....	121	13.3	10.0	17	10	89
Oakland.....	50	9.5	14.3	4	6	48
Oklahoma City.....	49			8	8	157
Patterson.....	37	13.3	12.2	1	3	17
Philadelphia.....	598	15.1	14.0	45	52	67
Pittsburgh.....	217	16.8	16.4	31	16	114
Portland, Oreg.....	66			1	2	12
Providence.....	74	13.5	14.4	9	4	83

Deaths from all causes in certain large cities of the United States during the week ended February 22, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929—Continued

City	Week ended Feb. 22, 1930		Annual death rate per 1,000, corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Feb. 22, 1930
	Total deaths	Death rate		Week ended Feb. 22, 1930	Corresponding week, 1929	
Richmond.....	61	16.4	21.2	4	10	59
White.....	34			0	3	0
Colored.....	27	(¹)	(¹)	4	7	175
Rochester.....	100	15.9	14.8	5	11	44
St. Louis.....	249	15.3	16.8	15	16	49
St. Paul.....	46			2	5	20
Salt Lake City ⁴	42	15.9	14.4	6	3	94
San Antonio.....	76	18.2	20.8	12	11	
San Diego.....	50			2	2	42
San Francisco.....	151	13.5	15.6	8	9	55
Schenectady.....	24	13.4	11.2	1	2	31
Seattle.....	84	11.4	11.4	3	6	30
Spokane.....	30	14.3	15.8	2	2	52
Springfield, Mass.....	44	15.3	15.3	5	1	79
Syracuse.....	52	13.6	16.0	5	3	62
Tacoma.....	26	12.3	12.3	3	2	77
Toledo.....	86	14.3	13.0	6	6	46
Trenton.....	42	15.8	16.1	5	5	93
Utica.....	34	17.0	16.0	4	1	114
Washington, D. C.....	165	15.6	15.2	22	14	123
White.....	105			16	7	138
Colored.....	60	(¹)	(¹)	6	7	106
Waterbury.....	25			5	3	128
Wilmington, Del.....	29	11.8	9.7	5	3	113
Worcester.....	70	18.5	16.9	9	7	117
Yonkers.....	20	8.6	12.9	1	5	24
Youngstown.....	32	9.6	9.9	1	4	16

¹ Annual rate per 1,000 population.

² Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.

³ Data for 70 cities.

⁴ Deaths for week ended Friday.

⁵ In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 33; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended February 22, 1930, and February 23, 1929

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended February 22, 1930, and February 23, 1929

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Feb. 22, 1930	Week ended Feb. 23, 1929	Week ended Feb. 22, 1930	Week ended Feb. 23, 1929	Week ended Feb. 22, 1930	Week ended Feb. 23, 1929	Week ended Feb. 22, 1930	Week ended Feb. 23, 1929
New England States:								
Maine	3	1	26	195	10	202	0	0
New Hampshire	1	2	4	40	36	13	0	0
Vermont	2	2		17	7	13	0	0
Massachusetts	75	62	6	169	447	285	3	1
Rhode Island	18	14		11	3	57	0	0
Connecticut	20	16	10	90	13	375	2	1
Middle Atlantic States:								
New York	130	237	139	126	575	634	17	36
New Jersey	86	107	15	52	445	194	7	5
Pennsylvania	161	115			781	1,199	14	10
East North Central States:								
Ohio	28	40	19	74	515	485	3	5
Indiana	38	21		133	29	404	23	0
Illinois	171	129	25	228	674	833	6	17
Michigan	67	57	17	25	482	312	20	20
Wisconsin	15	21	21	96	951	621	5	6
West North Central States:								
Minnesota	13	11		1	292	540	1	1
Iowa	12	20		111	732		2	2
Missouri	48	63	17	60	112	334	16	23
North Dakota	1	6			59	34	2	3
South Dakota	1	2		2	107	68	1	0
Nebraska	24	17		8	484	65	8	4
Kansas	11	17	7	70	437	315	3	6
South Atlantic States:								
Delaware	3				21	11	0	0
Maryland	25	16	35	402	16	104	1	1
District of Columbia	21	18		28	15	8	0	0
West Virginia	4	16	28	140	58	195	2	0
North Carolina	37	36	30		14	118	9	2
South Carolina	11	21	985	923		1	3	0
Georgia	8	7	92	191	146	69	3	1
Florida	12	11	5	15	76	16	0	0

1 New York City only.

2 Week ended Friday.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended February 22, 1930, and February 23, 1929—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Feb. 22, 1930	Week ended Feb. 23, 1929	Week ended Feb. 22, 1930	Week ended Feb. 23, 1929	Week ended Feb. 22, 1930	Week ended Feb. 23, 1929	Week ended Feb. 22, 1930	Week ended Feb. 23, 1929
East South Central States:								
Kentucky.....		8		14		26	6	0
Tennessee.....	16	4	133	344	208	4	13	2
Alabama.....	27	44	120	891	167	177	3	3
Mississippi.....	16	4					23	0
West South Central States:								
Arkansas.....	5	7	80	663	9	57	2	1
Louisiana.....	9	29	38	107	118	84	4	0
Oklahoma ¹	51	17	175	437	92	4	4	7
Texas.....	39	32	292	321	143	86	1	3
Mountain States:								
Montana.....	1	4		5	25	116	0	0
Idaho.....	2	4		3	22	1	2	6
Wyoming.....	2	1		7	13	11	0	0
Colorado.....	12	16		28	170	4	3	1
New Mexico.....	22	11	5	3	110	6	1	0
Arizona.....	9	1	14	3	2	5	5	8
Utah ¹		4	1	5	100	1	5	10
Pacific States:								
Washington.....	14	17		20	193	135	5	2
Oregon.....	7	13	80	95	24	162	0	0
California.....	69	70	34	133	1, 151	47	9	13

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Feb. 22, 1930	Week ended Feb. 23, 1929	Week ended Feb. 22, 1930	Week ended Feb. 23, 1929	Week ended Feb. 22, 1930	Week ended Feb. 23, 1929	Week ended Feb. 22, 1930	Week ended Feb. 23, 1929
New England States:								
Maine.....	0	0	60	9	0	4	2	0
New Hampshire.....	0	0	19	5	0	0	0	0
Vermont.....	0	0	8	5	4	4	0	1
Massachusetts.....	1	0	256	240	0	0	2	3
Rhode Island.....	0	0	39	18	0	0	0	2
Connecticut.....	0	0	131	56	0	2	1	0
Middle Atlantic States:								
New York.....	2	3	461	479	1	0	16	17
New Jersey.....	1	1	223	134	0	0	0	0
Pennsylvania.....	0	0	546	332	0	0	18	12
East North Central States:								
Ohio.....	2	0	284	187	175	50	8	3
Indiana.....	0	0	261	227	144	35	2	14
Illinois.....	2	1	604	448	113	131	4	11
Michigan.....	1	0	305	304	62	10	3	6
Wisconsin.....	1	2	145	152	36	12	3	1
West North Central States:								
Minnesota.....	1	0	131	139	5	5	3	3
Iowa.....	0	1	103	225	80	54	1	4
Missouri.....	0	0	135	119	78	50	1	3
North Dakota.....	1	0	28	44	15	0	0	0
South Dakota.....	0	0	23	21	39	22	0	0
Nebraska.....	0	0	103	105	67	30	0	1
Kansas.....	0	0	158	189	68	75	3	3
South Atlantic States:								
Delaware.....	1	0	16	1	0	0	0	0
Maryland ¹	0	1	113	67	0	0	2	3
District of Columbia.....	0	0	24	25	0	0	0	0
West Virginia.....	0	0	45	24	15	9	5	8
North Carolina.....	1	2	56	46	16	19	2	2
South Carolina.....	0	0	12	8	1	3	16	3
Georgia.....	1	0	6	11	0	8	1	0
Florida.....	0	0	8	5	1	0	1	4

¹ Week ended Friday.

² Figures for 1930 are exclusive of Oklahoma City and Tulsa and for 1929 are exclusive of Oklahoma City only.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended February 22, 1930, and February 23, 1929—Continued

Division and State	Polio-myelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Feb. 22, 1930	Week ended Feb. 23, 1929	Week ended Feb. 22, 1930	Week ended Feb. 23, 1929	Week ended Feb. 22, 1930	Week ended Feb. 23, 1929	Week ended Feb. 22, 1930	Week ended Feb. 23, 1929
East South Central States:								
Kentucky.....	0	0	62	55	14	21	0	0
Tennessee.....	1	0	22	34	15	2	6	4
Alabama.....	1	4	15	26	13	4	1	18
Mississippi.....	0	1	55	11	2	2	8	2
West South Central States:								
Arkansas.....	0	0	17	15	14	5	5	6
Louisiana.....	0	1	20	43	11	1	12	4
Oklahoma ¹	0	0	21	34	128	64	7	2
Texas.....	0	1	43	53	118	51	9	5
Mountain States:								
Montana.....	0	0	29	30	2	39	2	0
Idaho.....	0	0	5	8	2	24	1	2
Wyoming.....	0	0	15	19	16	4	0	0
Colorado.....	0	1	28	17	24	17	1	0
New Mexico.....	0	0	26	9	2	0	0	2
Arizona.....	0	0	9	3	18	1	10	2
Utah ²	0	0	6	5	1	3	1	0
Pacific States:								
Washington.....	0	1	50	26	82	80	14	0
Oregon.....	0	0	58	62	28	56	1	2
California.....	0	2	263	301	97	65	7	4

¹ Week ended Friday.

² Figures for 1930 are exclusive of Oklahoma City and Tulsa and for 1929 are exclusive of Oklahoma City only.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Menin- gococ- cus menin- gitis	Diph- theria	Influenza	Ma- laria	Meas- les	Pellag- ra	Polio- mye- litis	Scarlet fever	Small- pox	Ty- phoid fever
<i>December, 1929</i>										
Colorado.....	10	51	-----	-----	75	-----	3	180	105	9
Hawaii Territory.....	3	30	12	-----	23	-----	0	2	0	12
<i>January, 1930</i>										
Alabama.....	10	132	691	80	80	21	4	156	51	25
Colorado.....	15	24	5	-----	235	-----	1	144	120	7
Illinois.....	61	858	227	10	1,616	-----	4	2,442	625	45
Louisiana.....	20	161	126	22	172	7	0	89	27	44
Maryland.....	7	117	189	1	45	0	1	378	0	22
Massachusetts.....	20	563	49	1	1,133	2	4	1,497	0	24
Michigan.....	117	418	24	1	1,304	1	2	1,617	381	11
Minnesota.....	12	110	5	2	930	-----	1	581	35	21
Missouri.....	53	174	146	22	219	-----	0	416	210	17
Nevada.....	3	-----	-----	-----	33	-----	0	22	0	-----
New Hampshire.....	-----	18	27	-----	-----	-----	0	97	0	-----
New Mexico.....	6	49	11	3	368	2	3	45	12	7
New Jersey.....	25	529	67	1	932	-----	1	1,138	0	13
New York.....	70	649	-----	6	1,893	-----	5	2,075	58	59
North Carolina.....	18	269	149	-----	71	60	1	319	151	6
Ohio.....	45	306	111	2	2,982	-----	6	1,350	1,068	33
Oklahoma ¹	11	136	697	41	307	7	0	166	281	27
Pennsylvania.....	39	874	-----	-----	2,664	-----	1	2,077	8	59
Rhode Island.....	3	75	16	-----	7	-----	0	147	0	2
West Virginia.....	9	60	138	-----	325	-----	2	148	92	26

¹ Exclusive of Oklahoma City and Tulsa.

December, 1929

	Cases
Chicken pox:	
Colorado.....	549
Hawaii Territory.....	30
Conjunctivitis, infectious:	
Hawaii Territory.....	87
Dysentery (amebic):	
Hawaii Territory.....	1
German measles:	
Colorado.....	2
Impetigo contagiosa:	
Hawaii Territory.....	7
Leprosy:	
Hawaii Territory.....	5
Lethargic encephalitis:	
Colorado.....	1
Mumps:	
Colorado.....	115
Hawaii Territory.....	37
Tetanus:	
Colorado.....	1
Hawaii Territory.....	3
Trachoma:	
Hawaii Territory.....	434
Whooping cough:	
Colorado.....	106
Hawaii Territory.....	7

January, 1930

Actinomycosis:	
Illinois.....	1
Anthrax:	
New York.....	2
Pennsylvania.....	1
Botulism:	
Colorado.....	3
Chicken pox:	
Alabama.....	331
Colorado.....	361
Illinois.....	2,180
Louisiana.....	67
Maryland.....	452
Massachusetts.....	1,697
Michigan.....	1,609
Minnesota.....	758
Missouri.....	308
New Jersey.....	1,032
New Mexico.....	114
New York.....	3,515
North Carolina.....	1,083
Ohio.....	2,475
Oklahoma ¹	71
Pennsylvania.....	4,065
Rhode Island.....	123
West Virginia.....	216
Conjunctivitis:	
New Mexico.....	3
Oklahoma ¹	3
Diarrhea:	
Maryland.....	2
Diarrhea and enteritis (under 2 years):	
Ohio.....	21

Dysentery:	Cases
Illinois.....	9
Maryland.....	3
Minnesota (amebic).....	3
New Jersey.....	1
New York.....	4
Oklahoma ¹	2
German measles:	
Colorado.....	12
Illinois.....	68
Maryland.....	6
Massachusetts.....	85
New Jersey.....	207
New Mexico.....	6
New York.....	331
North Carolina.....	19
Ohio.....	17
Pennsylvania.....	193
Rhode Island.....	18
Hookworm disease:	
Louisiana.....	11
Impetigo contagiosa:	
Colorado.....	1
Maryland.....	4
Lead poisoning:	
Illinois.....	1
New Jersey.....	4
Ohio.....	27
Leprosy:	
Michigan.....	1
Lethargic encephalitis:	
Alabama.....	1
Illinois.....	6
Louisiana.....	2
Massachusetts.....	8
Michigan.....	3
Minnesota.....	1
New York.....	9
Ohio.....	6
Pennsylvania.....	2
Mumps:	
Alabama.....	42
Colorado.....	135
Illinois.....	655
Louisiana.....	12
Maryland.....	94
Massachusetts.....	1,112
Michigan.....	514
Missouri.....	91
Nevada.....	1
New Mexico.....	132
New York.....	2,103
Ohio.....	562
Oklahoma ¹	84
Pennsylvania.....	1,305
Rhode Island.....	3
West Virginia.....	8
Ophthalmia neonatorum:	
Illinois.....	43
Maryland.....	2
Massachusetts.....	134
Missouri.....	3

¹ Exclusive of Oklahoma City and Tulsa.

Ophthalmia neonatorum—Continued.

Cases

New Jersey.....	12
New York.....	8
North Carolina.....	2
Ohio.....	130
Oklahoma ¹	1
Pennsylvania.....	7

Paratyphoid fever:

Illinois.....	1
New Jersey.....	1
New York.....	12

Psittacosis:

Illinois.....	2
Maryland.....	14
Pennsylvania.....	3

Puerperal septicemia:

Illinois.....	5
New York.....	8
Ohio.....	12
Pennsylvania.....	11

Rabies in animals:

Illinois.....	3
Louisiana.....	13
Maryland.....	3
Missouri.....	19
New York ¹	18
North Carolina.....	2
Rhode Island.....	5

Rabies in man:

North Carolina.....	2
---------------------	---

Scabies:

Maryland.....	5
Oklahoma.....	2

Septic sore throat:

Illinois.....	15
Louisiana.....	4
Maryland.....	11
Massachusetts.....	45
Michigan.....	60
Missouri.....	14
New Mexico.....	1
New York.....	31
North Carolina.....	11
Ohio.....	52
Oklahoma ¹	19
Rhode Island.....	5

Tetanus:

Illinois.....	5
Louisiana.....	1
Maryland.....	5
Missouri.....	1
New York.....	5
Pennsylvania.....	4

Trachoma:

Illinois.....	3
Louisiana.....	2

Trachoma—Continued.

Cases

Maryland.....	5
Missouri.....	13
New York.....	1
Ohio.....	8
Oklahoma ¹	20

Trichinosis:

Maryland.....	1
New Jersey.....	1

Tularaemia:

Alabama.....	2
Illinois.....	19
Louisiana.....	1
Maryland.....	6
Minnesota.....	1
Missouri.....	4
North Carolina.....	3
Ohio.....	9
Pennsylvania.....	3

Typhus fever.

Alabama.....	1
--------------	---

Undulant fever.

Alabama.....	1
Illinois.....	2
Maryland.....	2
Massachusetts.....	3
Minnesota.....	3
Missouri.....	5
New Mexico.....	1
New York.....	9
Ohio.....	10
Pennsylvania.....	1

Vincent's angina

Colorado.....	1
Illinois.....	1
Maryland.....	6
New York.....	87

Whooping cough:

Alabama.....	231
Colorado.....	66
Illinois.....	1,096
Louisiana.....	21
Maryland.....	146
Massachusetts.....	1,710
Michigan.....	820
Minnesota.....	174
Missouri.....	140
New Jersey.....	789
New Mexico.....	20
New York.....	2,171
North Carolina.....	1,198
Ohio.....	969
Oklahoma ¹	49
Pennsylvania.....	1,726
Rhode Island.....	105
West Virginia.....	270

¹ Exclusive of Oklahoma City and Tulsa.¹ Exclusive of New York City.

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 96 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 31,630,000. The estimated population of the 89 cities reporting deaths is more than 30,035,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended February 15, 1930, and February 16, 1929

	1930	1929	Estimated expectancy
<i>Cases reported</i>			
Diphtheria:			
46 States.....	1,394	1,568	-----
96 cities.....	587	733	969
Measles:			
43 States.....	9,890	9,502	-----
96 cities.....	2,556	2,451	-----
Meningococcus meningitis:			
47 States.....	281	255	-----
96 cities.....	100	136	-----
Polomyelitis:			
47 States.....	23	17	-----
Scarlet fever:			
46 States.....	5,142	5,230	-----
96 cities.....	1,891	1,672	1,590
Smallpox:			
46 States.....	1,615	979	-----
96 cities.....	164	48	63
Typhoid fever:			
46 States.....	187	119	-----
96 cities.....	33	30	28
<i>Deaths reported</i>			
Influenza and pneumonia:			
89 cities.....	1,116	1,543	-----
Smallpox:			
89 cities.....	0	0	-----

City reports for week ended February 15, 1930

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during non-epidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1921 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Chick- en pox, cases re- ported	Diphtheria		Influenza		Meas- les, cases re- ported	Mumps, cases re- ported	Pneu- monia, deaths re- ported
		Cases, esti- mated expec- tancy	Cases, re- ported	Cases re- ported	Deaths re- ported			
NEW ENGLAND								
Maine:								
Portland.....	14	1	0	1	0	0	20	1
New Hampshire:								
Concord.....	0	1	0	-----	0	0	0	2
Manchester.....	0	1	0	-----	0	0	0	1
Nashua.....	1	0	0	-----	0	0	0	0
Vermont:								
Barre.....	0	0	0	-----	0	4	0	0
Burlington.....	2	0	1	-----	0	0	0	0
Massachusetts:								
Boston.....	67	46	21	4	0	104	82	40
Fall River.....	10	4	4	1	1	2	0	1
Springfield.....	8	4	5	1	1	0	3	5
Worcester.....	7	3	1	-----	0	82	0	1
Rhode Island:								
Pawtucket.....	10	1	0	-----	0	0	0	0
Providence.....	2	9	8	-----	0	0	0	10
Connecticut:								
Bridgeport.....	2	7	1	3	0	0	0	5
Hartford.....	8	7	3	1	0	1	1	8
New Haven.....	73	1	0	1	0	2	19	7
MIDDLE ATLANTIC								
New York:								
Buffalo.....	18	14	8	-----	2	3	2	31
New York.....	208	225	91	42	12	167	142	217
Rochester.....	15	9	0	2	0	5	1	7
Syracuse.....	26	3	0	-----	1	0	47	9
New Jersey:								
Camden.....	3	6	5	1	1	2	0	5
Newark.....	65	17	18	10	0	134	10	17
Trenton.....	11	2	2	-----	0	26	0	8
Pennsylvania:								
Philadelphia.....	103	73	25	9	8	54	51	85
Pittsburgh.....	28	22	22	2	7	77	5	40
Reading.....	21	2	2	-----	0	1	3	3
Scranton.....	4	4	3	-----	0	1	0	0
EAST NORTH CENTRAL								
Ohio:								
Cincinnati.....	17	10	2	-----	1	1	0	14
Cleveland.....	120	33	15	22	3	4	35	20
Columbus.....	8	4	0	3	3	16	0	8
Toledo.....	49	7	2	2	2	264	8	7
Indiana:								
Fort Wayne.....	5	3	1	-----	0	0	0	3
Indianapolis.....	17	8	4	-----	0	8	2	14
South Bend.....	11	1	0	-----	0	0	0	2
Terre Haute.....	4	1	2	-----	0	0	0	4
Illinois:								
Chicago.....	114	100	119	10	13	17	55	78
Springfield.....	11	1	0	6	3	0	3	2

City reports for week ended February 15, 1930—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases, reported	Cases reported	Deaths reported			
EAST NORTH CENTRAL—CON.								
Michigan:								
Detroit.....	53	53	39	13	3	315	27	40
Flint.....	14	3	1	—	0	5	0	4
Grand Rapids.....	8	2	0	—	1	1	1	2
Wisconsin:								
Kenosha.....	5	1	0	—	0	0	1	0
Madison.....	7	0	0	—	—	90	1	—
Milwaukee.....	195	19	0	1	1	23	46	11
Racine.....	3	3	0	—	0	1	2	2
Superior.....	0	0	0	—	0	13	0	2
WEST NORTH CENTRAL								
Minnesota:								
Duluth.....	2	0	0	—	0	64	1	2
Minneapolis.....	41	17	1	—	0	22	19	7
St. Paul.....	25	9	1	—	2	7	11	7
Iowa:								
Davenport.....	0	0	0	—	—	0	2	—
Des Moines.....	0	3	2	—	—	0	0	—
Sioux City.....	9	1	0	—	—	2	0	—
Waterloo.....	14	1	2	—	—	176	0	—
Missouri:								
Kansas City.....	0	6	0	—	1	4	2	11
St. Joseph.....	1	2	1	—	0	1	0	3
St. Louis.....	23	46	32	1	—	2	27	—
North Dakota:								
Fargo.....	6	1	0	—	0	0	6	1
Grand Forks.....	1	0	0	—	—	0	0	—
South Dakota:								
Aberdeen.....	6	0	0	—	—	0	1	—
Nebraska:								
Omaha.....	12	4	17	—	0	56	1	0
Kansas:								
Topeka.....	18	2	1	1	1	79	6	2
Wichita.....	23	4	0	—	0	5	0	4
SOUTH ATLANTIC								
Delaware:								
Wilmington.....	2	2	1	—	0	0	0	6
Maryland:								
Baltimore.....	120	28	17	28	2	6	7	30
Cumberland.....	0	0	0	—	1	0	0	1
Frederick.....	0	1	0	—	0	0	0	1
District of Columbia:								
Washington.....	19	21	14	1	0	0	0	18
Virginia:								
Lynchburg.....	9	1	2	—	1	122	12	8
Norfolk.....	5	2	5	—	0	2	23	5
Richmond.....	7	4	6	—	3	0	1	8
Roanoke.....	0	1	4	—	0	5	1	5
West Virginia:								
Charleston.....	15	0	0	—	0	3	0	0
Wheeling.....	1	1	0	—	0	1	0	1
North Carolina:								
Raleigh.....	2	1	0	—	0	0	0	3
Wilmington.....	5	0	0	—	0	1	0	2
Winston-Salem.....	10	1	2	3	1	1	17	5
South Carolina:								
Charleston.....	3	0	0	31	1	0	6	1
Columbia.....	11	1	0	—	0	0	6	4
Georgia:								
Atlanta.....	8	3	2	43	5	5	15	13
Brunswick.....	0	1	0	—	0	0	3	1
Savannah.....	0	0	0	2	2	0	0	4
Florida:								
Miami.....	7	1	4	—	0	1	1	2
St. Petersburg.....	—	0	—	—	0	—	—	1
Tampa.....	10	2	3	—	0	14	8	1

City reports for week ended February 15, 1930—Continued

Division, State, and city	Chick- en pox, cases re- ported	Diphtheria		Influenza		Meas- les, cases re- ported	Mumps, cases re- ported	Pneu- monia, deaths re- ported
		Cases, esti- mated expect- ancy	Cases, re- ported	Cases re- ported	Deaths re- ported			
EAST SOUTH CENTRAL								
Kentucky:								
Covington	1	1	2	-----	0	0	0	2
Tennessee:								
Memphis	11	3	0	-----	5	-----	28	8
Nashville	1	1	1	-----	1	0	0	13
Alabama:								
Birmingham	-----	3	-----	-----	-----	-----	-----	-----
Mobile	1	1	2	3	0	3	0	1
Montgomery	28	1	1	-----	-----	34	0	-----
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith	0	0	0	-----	-----	1	0	-----
Little Rock	4	1	0	-----	0	0	1	5
Louisiana:								
New Orleans	1	13	12	8	9	70	0	22
Shreveport	3	0	0	-----	0	0	0	9
Oklahoma:								
Oklahoma City	1	3	1	3	3	2	0	0
Tulsa	11	1	5	-----	-----	181	0	-----
Texas:								
Dallas	10	6	13	2	1	127	3	10
Fort Worth	26	2	2	-----	0	0	0	0
Galveston	1	1	0	-----	0	0	0	3
Houston	4	5	8	-----	0	0	1	13
San Antonio	1	3	6	1	9	1	0	10
MOUNTAIN								
Montana:								
Billings	0	0	0	-----	0	0	9	1
Great Falls	1	1	0	-----	0	0	20	0
Helena	0	0	0	-----	0	0	31	0
Missoula	0	1	0	-----	0	1	0	2
Idaho:								
Boise	0	0	0	-----	0	0	0	2
Colorado:								
Denver	-----	12	-----	-----	-----	-----	-----	-----
Pueblo	0	1	0	-----	0	0	29	2
New Mexico:								
Albuquerque	5	0	2	-----	0	0	4	1
Arizona:								
Phoenix	2	0	2	-----	0	1	3	3
Utah:								
Salt Lake City	20	3	0	-----	1	52	16	3
Nevada:								
Reno	0	0	0	-----	0	0	0	1
PACIFIC								
Washington:								
Seattle	47	5	2	-----	-----	59	67	-----
Spokane	19	3	2	3	-----	0	0	-----
Tacoma	24	1	2	-----	0	1	0	2
Oregon:								
Portland	18	8	6	4	1	2	15	10
Salem	5	0	0	1	-----	1	12	-----
California:								
Los Angeles	94	41	13	40	4	34	34	26
Sacramento	4	2	0	-----	0	3	29	4
San Francisco	47	10	18	2	3	467	81	11

City reports for week ended February 15, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
NEW ENGLAND											
Maine:											
Portland.....	3	6	0	0	0	1	0	0	0	0	21
New Hampshire:											
Concord.....	0	0	0	0	0	0	0	0	0	0	11
Manchester.....	3	0	0	0	0	1	0	0	0	0	18
Nashua.....	1	1	0	0	0	0	0	0	0	0	-----
Vermont:											
Barre.....	0	0	0	3	0	2	0	0	0	1	4
Burlington.....	1	0	0	0	0	0	0	0	0	1	2
Massachusetts:											
Boston.....	84	78	0	0	0	12	1	0	0	70	252
Fall River.....	4	2	0	0	0	3	0	0	0	15	30
Springfield.....	10	4	0	0	0	0	0	0	0	21	39
Worcester.....	10	10	0	0	0	1	0	1	0	9	75
Rhode Island:											
Pawtucket.....	2	1	0	0	0	0	0	0	0	1	11
Providence.....	12	19	0	0	0	2	0	0	0	32	73
Connecticut:											
Bridgeport.....	14	15	0	0	0	4	0	0	0	0	42
Hartford.....	5	7	0	0	0	3	0	0	0	2	55
New Haven.....	11	16	0	0	0	0	0	0	0	12	39
MIDDLE ATLANTIC											
New York:											
Buffalo.....	30	30	0	0	0	6	1	0	0	8	141
New York.....	343	226	0	0	0	100	7	11	0	54	1,600
Rochester.....	11	18	0	0	0	2	0	0	0	4	78
Syracuse.....	15	30	0	0	0	0	0	0	0	30	51
New Jersey:											
Camden.....	7	6	0	0	0	1	1	0	0	1	29
Newark.....	38	49	0	0	0	8	1	0	0	20	140
Trenton.....	6	12	0	0	0	5	0	1	0	3	54
Pennsylvania:											
Philadelphia.....	103	118	0	0	0	33	2	0	0	33	553
Pittsburgh.....	41	24	0	0	0	11	0	1	0	43	217
Reading.....	7	2	0	0	0	0	0	0	0	25	30
Scranton.....	4	4	0	0	0	0	0	0	0	1	-----
EAST NORTH CENTRAL											
Ohio:											
Cincinnati.....	21	35	1	0	0	7	0	0	0	7	127
Cleveland.....	50	75	1	0	0	18	1	1	0	46	216
Columbus.....	11	8	1	8	0	8	0	0	0	4	70
Toledo.....	13	3	0	2	0	10	0	1	0	2	85
Indiana:											
Fort Wayne.....	5	4	0	11	0	0	0	2	0	2	29
Indianapolis.....	13	27	8	4	0	6	0	0	0	4	-----
South Bend.....	3	0	1	1	0	1	0	0	0	0	20
Terre Haute.....	3	1	0	1	0	0	0	0	0	0	23
Illinois:											
Chicago.....	137	304	3	2	0	45	3	0	0	66	771
Springfield.....	4	0	0	2	0	0	1	0	0	3	29
Michigan:											
Detroit.....	113	140	2	11	0	25	0	1	0	71	308
Flint.....	14	20	0	12	0	4	1	0	0	9	32
Grand Rapids.....	13	16	0	0	0	0	0	0	0	4	44
Wisconsin:											
Kenosha.....	2	13	1	0	0	0	0	0	0	4	10
Madison.....	5	6	0	1	0	0	0	0	0	20	-----
Milwaukee.....	40	38	1	1	0	11	0	1	0	8	120
Racine.....	5	5	0	0	0	1	0	0	0	17	22
Superior.....	4	4	0	0	0	0	0	0	0	0	10
WEST NORTH CENTRAL											
Minnesota:											
Duluth.....	10	1	0	2	0	0	0	0	0	4	20
Minneapolis.....	59	15	4	0	0	2	0	1	0	11	91
St. Paul.....	36	23	1	0	0	5	0	0	0	18	60

City reports for week ended February 15, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culosis, deaths reported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
WEST NORTH CENTRAL—continued											
Iowa:											
Davenport.....	2	0	1	20	-----	-----	0	0	-----	0	-----
Des Moines.....	9	18	2	4	-----	-----	0	0	-----	0	31
Sioux City.....	1	6	0	1	-----	-----	0	0	-----	3	-----
Waterloo.....	2	0	1	12	-----	-----	0	0	-----	0	-----
Missouri:											
Kansas City.....	18	41	2	0	0	10	0	1	0	7	111
St. Joseph.....	3	2	0	1	0	2	0	0	0	0	-----
St. Louis.....	47	44	2	4	0	12	1	2	0	19	265
North Dakota:											
Fargo.....	2	2	0	0	0	0	0	0	0	7	2
Grand Forks.....	1	4	0	2	-----	-----	0	0	-----	0	-----
South Dakota:											
Aberdeen.....	2	0	0	1	-----	-----	0	0	-----	2	-----
Nebraska:											
Omaha.....	5	6	2	2	0	0	0	1	0	1	59
Kansas:											
Topeka.....	2	4	1	2	0	1	0	0	0	11	16
Wichita.....	6	27	1	1	0	1	0	0	0	15	35
SOUTH ATLANTIC											
Delaware:											
Wilmington.....	5	8	0	0	0	2	0	0	0	3	48
Maryland:											
Baltimore.....	35	55	0	0	0	16	1	2	0	11	238
Cumberland.....	1	1	0	0	0	0	0	0	0	0	13
Frederick.....	0	0	0	0	0	0	0	0	0	0	3
District of Columbia:											
Washington.....	26	22	1	0	0	11	1	0	0	14	149
Virginia:											
Lynchburg.....	0	2	0	0	0	0	0	0	0	2	13
Norfolk.....	3	4	0	0	0	1	0	0	0	6	-----
Richmond.....	4	10	0	0	0	4	0	0	0	0	55
Roanoke.....	1	2	0	0	0	0	0	0	0	0	27
West Virginia:											
Charleston.....	2	1	0	1	0	1	0	1	0	8	9
Wheeling.....	2	0	0	0	0	1	0	0	0	1	22
North Carolina:											
Raleigh.....	1	1	0	2	0	1	0	0	0	0	33
Wilmington.....	0	0	0	0	0	0	0	0	0	3	11
Winston-Salem.....	1	5	0	0	0	2	0	0	0	8	21
South Carolina:											
Charleston.....	1	0	0	0	0	1	0	0	0	4	25
Columbia.....	0	0	0	0	0	0	0	0	0	19	13
Georgia:											
Atlanta.....	5	16	4	0	0	14	0	1	0	0	109
Brunswick.....	0	0	0	0	0	0	0	0	0	0	5
Savannah.....	1	0	0	0	0	3	0	0	0	0	29
Florida:											
Miami.....	3	0	0	0	0	0	0	1	0	1	35
St. Petersburg.....	0	-----	0	-----	0	0	0	-----	0	-----	19
Tampa.....	0	3	0	0	0	1	1	0	0	0	24
EAST SOUTH CENTRAL											
Kentucky:											
Covington.....	2	6	0	4	0	0	0	0	0	0	15
Tennessee:											
Memphis.....	7	12	1	0	0	3	0	0	0	7	101
Nashville.....	3	-----	0	0	0	4	0	1	2	2	46
Alabama:											
Birmingham.....	2	-----	4	-----	-----	-----	0	-----	-----	1	26
Mobile.....	0	0	0	0	0	5	0	0	0	-----	-----
Montgomery.....	1	5	1	0	-----	-----	0	0	-----	2	-----
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith.....	1	1	0	0	-----	-----	0	0	-----	0	-----
Little Rock.....	2	1	0	0	0	2	0	0	0	0	-----
Louisiana:											
New Orleans.....	7	10	0	0	0	12	3	1	0	0	181
Shreveport.....	0	0	0	6	0	0	0	0	0	0	86

City reports for week ended February 15, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
WEST SOUTH CENTRAL—continued											
Oklahoma:											
Oklahoma City.....	2	5	2	10	0	1	0	0	0	0	45
Tulsa.....	2	2	1	5			0	0		15	
Texas:											
Dallas.....	4	12	3	6	0	5	0	0	0	8	65
Fort Worth.....	1	8	3	0	0	0	0	0	0	0	
Galveston.....	0	0	0	0	0	0	0	0	0	0	14
Houston.....	2	5	3	8	0	1	0	1	0	0	72
San Antonio.....	2	2	0	8	0	8	0	0	0	0	79
MOUNTAIN											
Montana:											
Billings.....	0	2	1	0	0	0	0	0	0	0	8
Great Falls.....	2	20	0	0	0	0	0	0	0	0	6
Helena.....	0	0	0	0	0	0	0	0	0	1	1
Missoula.....	0	0	0	2	0	0	0	0	0	0	4
Idaho:											
Boise.....	1	5	1	0	0	0	0	0	0	2	8
Colorado:											
Denver.....	13		0				0				
Pueblo.....	1	0	0	1	0	0	0	0	0	1	15
New Mexico:											
Albuquerque.....	1	1	0	0	0	4	0	1	0	0	12
Arizona:											
Phoenix.....	1	7	0	1	0	3	0	0	0	0	14
Utah:											
Salt Lake City.....	3	5	1	1	0	0	0	0	1	34	38
Nevada:											
Reno.....	0	3	0	0	0	0	0	0	0	0	3
PACIFIC											
Washington:											
Seattle.....	11	34	3	5			1	0		6	
Spokane.....	7	0	9	22			0	0		21	
Tacoma.....	2	7	3	10	0	0	0	0	0	5	31
Oregon:											
Portland.....	7	3	15	8	0	3	0	1	0	8	94
Salem.....	0	0	1	1	0	0	0	0	0	8	
California:											
Los Angeles.....	40	46	2	2	0	30	1	0	0	20	265
Sacramento.....	2	5	0	2	0	3	0	0	0	0	22
San Francisco.....	22	41	1	3	0	9	0	2	0	1	171

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Pellomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Massachusetts:									
Boston.....	2	0	1	0	0	0	0	0	0
Springfield.....	1	0	0	0	0	0	0	0	0
Rhode Island:									
Providence.....	0	1	1	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
New York.....	14	7	1	0	0	0	1	0	0
Rochester.....	0	0	0	0	0	0	0	1	0
Syracuse.....	1	0	0	0	0	0	0	0	0
New Jersey:									
Newark.....	2	0	0	0	0	0	0	0	0
Pennsylvania:									
Philadelphia.....	3	3	1	0	0	0	0	0	0
Pittsburgh.....	0	1	0	0	0	0	0	0	0

City reports for week ended February 15, 1930—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Polio myelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
EAST NORTH CENTRAL									
Ohio:									
Cincinnati.....	2	1	0	0	0	0	0	0	0
Cleveland.....	3	2	2	1	0	0	0	0	0
Indiana:									
Indianapolis.....	9	0	0	0	0	0	0	0	0
South Bend.....	1	0	0	0	0	0	0	0	0
Illinois:									
Chicago.....	5	6	0	0	0	0	1	3	0
Springfield.....	1	0	0	0	0	0	0	0	0
Michigan:									
Detroit.....	11	6	0	0	1	1	0	0	0
Flint.....	1	0	0	0	0	0	0	0	0
Grand Rapids.....	1	1	0	0	0	0	0	0	0
Wisconsin:									
Milwaukee.....	1	2	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
Minneapolis.....	1	0	0	0	0	0	0	0	0
St. Paul.....	0	0	1	0	0	0	0	0	0
Missouri:									
Kansas City.....	11	7	0	0	0	0	0	0	0
St. Louis.....	6	4	0	0	0	0	0	0	0
Nebraska:									
Omaha.....	1	0	0	0	0	0	0	0	0
SOUTH ATLANTIC									
Maryland:									
Baltimore.....	0	0	0	1	0	0	0	0	0
District of Columbia:									
Washington.....	1	1	1	1	0	0	0	1	0
Virginia:									
Richmond.....	0	1	0	0	0	0	0	0	0
North Carolina:									
Raleigh.....	0	0	0	0	0	2	0	0	0
Winston-Salem.....	0	0	0	0	2	0	0	0	0
South Carolina:									
Charleston.....	0	0	0	0	3	0	0	0	0
Columbia.....	1	0	0	0	0	1	0	0	0
Georgia:									
Atlanta.....	8	3	0	0	1	1	0	0	0
Florida:									
Miami.....	0	0	0	0	0	1	0	0	0
St. Petersburg.....	0	0	0	1	0	0	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis.....	2	8	0	0	0	0	0	0	0
Alabama:									
Mobile.....	1	1	0	0	0	0	0	0	0
WEST SOUTH CENTRAL									
Louisiana:									
New Orleans.....	1	1	0	0	0	0	0	0	0
Shreveport.....	0	0	0	0	0	1	0	0	0
Oklahoma:									
Oklahoma City.....	0	0	0	1	0	0	0	0	0
Tulsa.....	1	0	0	0	0	0	0	0	0
Texas:									
Galveston.....	0	0	0	0	0	1	0	0	0
MOUNTAIN									
New Mexico:									
Albuquerque.....	0	1	0	0	0	0	0	0	0
Utah:									
Salt Lake City.....	1	0	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle.....	2	0	0	0	0	0	0	0	0
Spokane.....	2	0	0	0	0	0	0	0	0
California:									
Los Angeles.....	1	2	0	1	0	0	0	0	0
Sacramento.....	1	1	0	0	0	0	0	0	0
San Francisco.....	1	1	0	0	0	0	0	0	0

¹ Typhus fever; 1 case at Miami, Fla.

The following table gives the rates per 100,000 population for 98 cities for the 5-week period ended February 15, 1930, compared with those for a like period ended February 16, 1929. The population figures used in computing the rates are approximate estimates, authoritative figures for many of the cities not being available. The 98 cities reporting cases have an estimated aggregate population of more than 32,000,000. The 91 cities reporting deaths have more than 30,500,000 estimated population.

*Summary of weekly reports from cities, January 12 to February 15, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929*¹

DIPHTHERIA CASE RATES

	Week ended—									
	Jan. 18, 1930	Jan. 19, 1929	Jan. 25, 1930	Jan. 26, 1929	Feb. 1, 1930	Feb. 2, 1929	Feb. 8, 1930	Feb. 9, 1929	Feb. 15, 1930	Feb. 16, 1929
98 cities.....	110	² 132	³ 114	125	⁴ 115	109	⁵ 95	117	⁶ 97	121
New England.....	122	177	146	200	⁷ 128	108	⁷ 112	117	95	130
Middle Atlantic.....	94	158	98	136	⁸ 103	133	97	141	83	147
East North Central.....	127	⁹ 107	145	123	140	106	103	113	115	115
West North Central.....	108	146	82	115	¹⁰ 47	90	¹⁰ 94	146	104	180
South Atlantic.....	103	99	108	79	106	107	70	67	93	73
East South Central.....	67	171	74	187	94	68	81	82	¹¹ 58	82
West South Central.....	205	76	157	114	232	95	168	114	146	114
Mountain.....	51	61	¹² 51	52	¹³ 34	70	¹³ 34	78	¹⁴ 0	44
Pacific.....	94	104	92	92	¹⁵ 68	65	43	68	87	77

MEASLES CASE RATES

98 cities.....	208	¹ 218	² 227	261	³ 221	274	⁴ 329	252	⁵ 421	404
New England.....	157	700	210	667	⁶ 323	514	⁷ 305	561	432	541
Middle Atlantic.....	124	70	117	86	⁸ 160	93	186	129	224	114
East North Central.....	152	⁹ 303	137	381	168	418	172	66	253	761
West North Central.....	364	423	457	627	¹⁰ 604	770	¹⁰ 695	1,193	793	983
South Atlantic.....	167	84	157	84	287	103	245	133	306	135
East South Central.....	40	34	27	27	61	7	81	14	¹¹ 357	41
West South Central.....	400	11	624	34	314	34	695	34	743	50
Mountain.....	240	853	¹² 377	871	¹³ 462	697	¹⁴ 479	1,341	¹⁵ 908	1,019
Pacific.....	676	56	730	75	¹⁶ 124	99	1,200	135	1,450	164

SCARLET FEVER CASE RATES

98 cities.....	278	¹ 225	² 295	230	³ 305	232	⁴ 327	246	⁵ 312	277
New England.....	363	294	419	317	⁶ 321	303	⁷ 479	305	350	373
Middle Atlantic.....	223	183	239	217	⁸ 252	190	274	186	246	222
East North Central.....	398	⁹ 258	379	262	420	280	432	318	438	340
West North Central.....	260	248	307	296	¹⁰ 346	306	¹⁰ 332	312	324	360
South Atlantic.....	198	122	176	114	205	731	203	146	231	157
East South Central.....	101	232	169	232	162	157	216	246	¹¹ 222	260
West South Central.....	134	183	105	99	78	145	138	232	116	265
Mountain.....	335	183	¹² 479	104	¹³ 616	61	¹⁴ 411	113	¹⁵ 599	87
Pacific.....	276	377	402	258	¹⁶ 367	350	338	304	314	328

¹ The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1930 and 1929, respectively.

² South Bend, Ind., not included.

³ Denver, Colo., not included.

⁴ Portland, Me., Buffalo, N. Y., St. Louis, Mo., Denver, Colo., and San Francisco, Calif., not included.

⁵ Portland, Me., Kansas City, Mo., and Denver, Colo., not included.

⁶ Birmingham, Ala., and Denver, Colo., not included.

⁷ Portland, Me., not included.

⁸ Buffalo, N. Y., not included.

⁹ St. Louis, Mo., not included.

¹⁰ Kansas City, Mo., not included.

¹¹ Birmingham, Ala., not included.

¹² San Francisco, Calif., not included.

Summary of weekly reports from cities, January 12 to February 15, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929—Continued

SMALLPOX CASE RATES

	Week ended—									
	Jan. 18, 1930	Jan. 19, 1929	Jan. 25, 1930	Jan. 26, 1929	Feb. 1, 1930	Feb. 2, 1929	Feb. 8, 1930	Feb. 9, 1929	Feb. 15, 1930	Feb. 16, 1929
98 cities.....	33	¹ 7	² 26	8	⁴ 33	7	⁵ 30	5	⁶ 27	8
New England.....	0	0	4	0	⁷ 0	0	⁷ 2	0	7	0
Middle Atlantic.....	0	0	1	0	⁸ 0	0	0	0	0	0
East North Central.....	36	¹⁶ 19	19	8	³⁹ 10	8	⁸⁴ 8	⁸³ 8	¹⁵ 15	15
West North Central.....	121	13	70	2	⁵³ 8	¹⁰ 69	2	47	0	0
South Atlantic.....	5	6	2	7	5	11	4	0	5	2
East South Central.....	0	7	0	14	13	7	0	0	¹¹ 39	0
West South Central.....	41	46	37	40	78	27	101	50	105	28
Mountain.....	51	17	³⁴ 61	⁵⁸ 61	⁷⁸ 78	³⁴ 26	¹⁰⁸ 70	¹⁰⁴ 24		
Pacific.....	144	17	177	19	¹² 244	7	146	7	104	24

TYPHOID FEVER CASE RATES

98 cities.....	6	² 4	² 4	4	⁵ 5	4	⁴ 4	5	⁵ 5	5
New England.....	4	4	0	2	⁷ 0	2	⁷ 0	2	2	4
Middle Atlantic.....	3	4	5	2	⁵ 4	3	4	6	4	4
East North Central.....	3	¹³ 3	3	4	3	1	5	3	3	2
West North Central.....	11	2	2	4	⁶ 6	¹⁰ 2	2	9	12	12
South Atlantic.....	5	6	7	2	7	7	11	6	7	6
East South Central.....	13	21	20	7	7	0	20	7	¹¹ 10	14
West South Central.....	7	8	4	23	4	8	7	27	7	11
Mountain.....	00	0	¹⁷ 0	¹⁷ 0	¹⁷ 0	¹⁷ 0	¹⁷ 0	¹⁷ 0	¹⁷ 0	0
Pacific.....	5	2	2	10	¹² 20	7	2	7	5	7

INFLUENZA DEATH RATES

91 cities.....	10	² 183	² 22	131	¹² 18	84	¹⁴ 14	58	²⁰ 20	54
New England.....	9	141	9	204	⁷ 2	141	⁷ 5	90	4	56
Middle Atlantic.....	15	152	14	134	¹⁶ 83	11	58	15	44	44
East North Central.....	17	¹⁴⁸ 17	70	13	48	13	28	18	36	36
West North Central.....	27	124	18	69	18	45	¹⁰ 19	61	12	33
South Atlantic.....	22	²⁸ 31	182	11	114	11	92	29	60	60
East South Central.....	44	948	50	619	59	298	37	127	¹¹ 66	224
West South Central.....	65	320	111	189	88	168	54	102	73	152
Mountain.....	26	157	¹⁰ 70	¹⁷ 35	¹⁷ 35	¹⁷ 35	¹⁷ 35	¹⁷ 35	¹⁷ 35	87
Pacific.....	15	75	18	44	¹² 5	41	9	41	21	41

PNEUMONIA DEATH RATES

91 cities.....	155	² 366	² 142	327	¹² 171	273	¹⁷⁶ 176	230	¹⁷⁴ 174	222
New England.....	115	442	126	465	⁷ 181	507	⁷ 151	384	177	303
Middle Atlantic.....	167	446	135	454	⁸ 165	360	190	298	202	254
East North Central.....	109	²⁸⁰ 111	184	129	170	139	133	129	183	183
West North Central.....	207	241	143	189	160	189	¹⁰ 146	176	109	180
South Atlantic.....	170	474	196	388	218	208	198	240	196	243
East South Central.....	162	455	221	358	272	209	236	194	¹¹ 263	104
West South Central.....	237	383	310	297	314	191	291	191	276	211
Mountain.....	249	200	¹⁷¹ 157	²⁰⁵ 148	²⁷⁴ 148	²⁷⁴ 148	²⁷⁴ 148	²⁷⁴ 148	²⁷⁴ 148	244
Pacific.....	169	119	95	123	¹² 167	113	160	129	132	123

² South Bend, Ind., not included.

³ Denver, Colo., not included.

⁴ Portland, Me., Buffalo, N. Y., St. Louis, Mo., Denver, Colo., and San Francisco, Calif., not included.

⁵ Portland, Me., Kansas City, Mo., and Denver, Colo., not included.

⁶ Birmingham, Ala., and Denver, Colo., not included.

⁷ Portland, Me., not included.

⁸ Buffalo, N. Y., not included.

⁹ St. Louis, Mo., not included.

¹⁰ Kansas City, Mo., not included.

¹¹ Birmingham, Ala., not included.

¹² San Francisco, Calif., not included.

¹³ Portland, Me., Buffalo, N. Y., Denver, Colo., and San Francisco, Calif., not included.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Week ended February 8, 1930.—The Department of Pensions and National Health reports cases of certain communicable diseases from eight Provinces of Canada for the week ended February 8, 1930, as follows:

Province	Cerebro-spinal fever	Influenza	Poliomyelitis	Small-pox	Typhoid fever
Prince Edward Island ¹.....	.....	.....	.....	.....	.....
Nova Scotia ¹.....	.....	.....	.....	.....	.....
Quebec.....	1	.....	2	.....	5
Ontario.....	1	20	.....	12	2
Manitoba.....	1	.....	.....	3	1
Saskatchewan.....	.....	.....	1	22	.....
Alberta.....	.....	.....	.....	8	1
British Columbia.....	1	.....	.....	3	5
Total.....	4	20	3	48	14

¹ No case of any disease included in the table was reported during the week.

Quebec Province—Communicable diseases—Week ended February 15, 1930.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended February 15, 1930, as follows:

Disease	Cases	Disease	Cases
Chicken pox.....	76	Poliomyelitis.....	1
Diphtheria.....	45	Puerperal fever.....	3
German measles.....	12	Scarlet fever.....	103
Influenza.....	6	Tuberculosis.....	48
Measles.....	212	Typhoid fever.....	10
Mumps.....	142	Whooping cough.....	121

CHINA

Meningitis.—During the week ended February 15, 1930, 8 cases of meningitis were reported in Shanghai, China.

DENMARK

Communicable diseases—December, 1929.—During the month of December, 1929, cases of communicable diseases were reported in Denmark as follows:

Disease	Cases	Disease	Cases
Broncho-pneumonia.....	1,567	Paratyphoid fever.....	6
Cerebrospinal meningitis.....	8	Pneumonia.....	292
Chicken pox.....	72	Polio-myelitis.....	13
Diphtheria and croup.....	619	Puerperal fever.....	8
Erysipelas.....	263	Scabies.....	896
German measles.....	9	Scarlet fever.....	193
Influenza.....	3,984	Tetanus.....	2
Jaundice.....	185	Tuberculosis.....	169
Lethargic encephalitis.....	11	Typhoid fever.....	3
Measles.....	588	Undulant fever ¹	37
Mumps.....	1,683	Whooping cough.....	825

¹ Reported from the State Serum Institute.

MEXICO

Meningitis.—According to recent information, an epidemic of cerebrospinal meningitis is prevailing in northern Sonora. Cases to February 20, 1930, were reported in the following districts: Cananea 7, Hermosillo 4, Nogales 1, El Plomo 10, Cumtias 6, Sahuarita 9. Seven deaths had been reported. The State Government of Sonora has sent physicians and medicine to outlying regions to combat the disease.

TRINIDAD (BRITISH WEST INDIES)

Port of Spain—Vital statistics (comparative)—January, 1930.—The following statistics for the month of January for the years 1926 to 1930 are taken from a report issued by the Public Health Department of Port of Spain, Trinidad:

January

	1926	1927	1928	1929	1930
Number of births.....	164	154	159	177	157
Birth rate per 1,000 population.....	30.2	27.9	28.8	31.9	27.8
Number of deaths.....	140	126	141	119	135
Death rate per 1,000 population.....	25.8	22.8	25.5	21.4	23.9
Deaths under 1 year.....	28	22	25	16	35
Infant mortality rate per 1,000 births.....	170.7	141.6	157.0	90.4	222.9

VIRGIN ISLANDS

Communicable diseases—January, 1930.—During the month of January, 1930, cases of certain communicable diseases were reported in the Virgin Islands, as follows:

St. Thomas and St. John	Cases	St. Croix:	Cases
Gonorrhea.....	2	Chicken pox.....	1
Malaria.....	1	Gonorrhea.....	3
Syphilis.....	9	Syphilis.....	2
Tuberculosis (chronic pulmonary).....	1		

Place	July, 1929	August, 1929	September, 1929	October, 1929	November, 1929			December, 1929			January, 1930		
					1-10	11-20	21-30	1-10	11-20	21-31	1-10	11-20	21-31
India (French):													
Chandernagor.....	1		1	5	2	10	1	1					
Karikal.....	1			5	4	4	3	1					
Pondichéry Province.....			3		2	2							
India (Portuguese).....	1	1	1										
Indo-China (see also table below):													
Phnompenh.....	3	3	61	43	1	2	1						
Saigon and Cholon.....	3	2	53	37		2		2					
Japan.....	2		34	1		1							
Kobe.....	2	9	3										
Osaka.....	5	41	14										
Shimonoseki.....	1	2											
Siam.....	180	26	9		2	1	4						
	112	19	4		1	1	1	3					
Anthoang.....	10							1					
Ayudhya.....	3		2										
Bangkok.....	9	10	4		2		3	1	2	3	2		1
Dhannapuri.....	3	5	2										
Lobpur.....	2	3	2										
Nagara Rajima.....	2	3											
Srdharmarj Province.....	5		2										
	15												
	13												
On vessel:													
S. S. Shinsai, at Shanghai.....	1	3											
S. S. Texas Maru, at Nagasaki, from Shanghai.....													
Indo-China (French) (see also table above):													
Annam.....	9	17	1				2						
Cambodia.....	186	35	38				43						
Cochin-China.....	315	60	45	221			15		41		71		76
Laos.....	13	3	12	3					46		67		110

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE—Continued

[C indicates cases; D, deaths; F, present]

Place		Week ended—											
		December, 1929			January, 1930				February, 1930				
		21	28		4	11	18	25	1	8	15		
Iraq:													
Baghdad.....	C	2											
Basra.....	D		3	4	3								
Naubham.....	C		1	2	1								
Italy: Naples Province.....	C			1									
Plague-infected rats.....	D		2										
Japan: Osaka (vicinity of)—Plague-infected rats.....			1										
Kwangchow Wan.....	C		3										
Madagascar (see also table below):													
Tunisiat.....	C	1	2	5	3				1	3			
Morocco.....	D		18	10	3				3				
Nigeria: Lagos.....	C	4	1	3	3				4	1			
Plague-infected rats.....	C	6	17	37	58				5	2			
Peru (see table below).....	D	8	17	35	49				3	4			
Senegal (see table below).....		16	51	89	33				2	7			
Siam.....	C	3	7	3	1				3	1			
Bangkok.....	D	3	5	3	1				3	1			
Nagara Pathom.....	C	3	1						1				
Nagara Rajsiima.....	D	3							1				
Straits Settlements: Singapore.....	C												
Syria: Beirut.....	D								1	5	1	2	
Tunisia.....	C								1	4	2	1	
Tunis district.....	D								1	2	1		
Tunisi.....	C												
Plague-infected rats.....	D		13	34	20				1	2	3	1	11
			10	25	41				9	6	4	1	
			1						9				
			4						21				

Rangoon.....	C	1	1	1	1	1	1	1	1	2	3	2	2
Tuticorin.....	D									1	1	1	1
Vizagapatam.....	C		1	1						2	2	1	
India (French):	D												
Karikal.....	C	12	14	2	4	1	1					8	
Pondicherry Province.	D	2	13	2	2	1	1					13	
India (Portuguese).	C	12	8	5	19	7	7	2	6	5	5	13	1
Indo-China (see also table below):	D	7	8	3	16	1	1	1	7	6	10	10	1
Promepeh.....	C		1	1	1	1			3	1	3		
Saigon and Cholon.....	D	3	1	1	2								
Israq:	C	3	1	1									
Baghdad.....	D	3	1										
Basra.....	C				9	29	4	6	5	3	1	3	2
Diyniah Liwa.....	D				3	10	1	1	3	2	1	1	1
Kirkuk Liwa.....	C	13	4		63	46							
Mosoul.....	D	12	21	16	18	7							
Ivory Coast (see table below).	C				90	70							
Mexico (see also table below).	D	81	68	24	25	19	53	27					
Acapulco.....	C	13	17	6	99	17							
Aguascalientes.....	D	4	1										
Cashu.....	D	7	6		1								
Yalisco (State): Guadaluajara.....	D	5	5	4	4	6	1	5	1	2	2	3	4
Juarez.....	C	3	P	10	6	11							
Mexico City and surrounding territory.....	D	21	7	8	9	19	2	15	5	3	10	9	
Morelos State. ¹	C	6	1	8	4	9			1	3	1	3	
Morocco (see table below)	D												
Netherlands Rotterdam.....	C	141	110	29	18	5			1				
Nigeria: Lagos.....	D	1	7	5	1	1							
Panama.....	C			1					1	1	1		
Persia (see table below).	D	5	95	154	11								
Philippine Islands: Sarangani and Balut Islands ?	D								40		18		3

¹ Newspaper reports of Feb. 4, 1930, show an epidemic of smallpox in Isonatepec, Morelos State, and vicinity, giving 600 deaths in last two weeks.

² On Feb. 1, 1930, 317 cases of smallpox with 102 deaths were reported to date in the Sarangani and Balut Islands.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

[illegible]

Place	August, 1929	Sep- tember, 1929	October, 1929	November, 1929			December, 1929			January, 1930				
				1-10	11-20	21-30	1-10	11-20	21-31	1-10	11-20	21-31		
Belgian Congo.....	C	25			42									
Dahomey.....	D	19			2									
Indo-China (see also table above).....	C		4			19	19	142		136				
Ivory Coast.....	C	253	128		245									184
Sudan (French).....	C	2												
Syria: Beirut.....	C	29	2		22	P	10	17	6	18	4	225		46
	D	37	25	1	6			9						
Place	Aug- ust, 1929	Sep- tem- ber, 1929	Octo- ber, 1929	No- vem- ber, 1929	De- cem- ber, 1929	Jan- uary, 1930	Place			Sep- tem- ber, 1929	Octo- ber, 1929	No- vem- ber, 1929	De- cem- ber, 1929	Jan- uary, 1930
Bolivia: La Paz.....	C		120	22					C	10	3	12	41	84
British East Africa (see also table above):	C								Persia.....		62	57		P
Kenya.....	C	60		278					D		158	37		
Chosen.....	C	1		2					C	1	41	100	136	
	D								Turkey.....		9	29	12	
Mexico: Durango (see also table above).....	D		2	2	4	12			D					

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER

[C indicates cases; D, deaths; P, present]

Place	July 28- Aug. 24, 1929	Aug. 25- Sept. 21, 1929	Sept. 22- Oct. 19, 1929	Oct. 20- Nov. 16, 1929	Week ended—									
					November, 1929					December, 1929				
					23	30	7	14	21	28	4	11	18	25
Algeria:														
Algiers.....	4	4	10	2		1				1		13		
Constantine Department.....	2			1				2			1	1	2	2
Oran.....	2	3						1				1	1	1
Bolivia:														
La Paz.....														
Pacajes Province—Calecoto Canton.....	19			13	14									
Brazil: Sao Paulo. ¹	5													
Bulgaria:														
Sofia.....		14					9							
Chile: Valparaiso.....							1							
China: Peking.....	1			1									1	
Choon (see table below).....	1								1					
Czechoslovakia (see table below).														
Egypt:														
Alexandria.....		1	2											
Assuan.....											9			
Behaira Province.....	31	6	16	2							1	7	6	8
Cairo.....	4	2	4	1										
Dakahlieh.....		1			1									
Port Said.....	3										4	7		
Suez (see table below).	2		1	1								2		1
Iraq: Baghdad Liwa.....														
Ireland (Irish Free State): Donegal County—Dunfanaghy.....											1	1	1	

Place	August, 1929	Septem- ber, 1929	Octo- ber, 1929	Novem- ber, 1929	Decem- ber, 1929	January, 1930
Latvia (see table below).						
Lithuania (see table below).						
Mexico:						
Guascalientes	1	14	9	3	1	1
Mexico City, including municipalities in Federal District	D	11	1	1	2	3
Morocco	C	6	1	1	2	3
Palestine	C	1	1	1	1	7
Persia	C	5	3	2	1	1
Peru: Arequipa (see table below).	D	3	1	1	1	1
Poland	48	27	31	62	17	16
Portugal: Oporto	D	4	1	3	2	3
Rumania	C	9	30	19	5	11
Tunisia	D	1	4	1	1	1
Turkey (see table below).	C	1	1	1	1	1
Union of South Africa:						
Natal Province	C	1	P	P	P	P
Orange Free State	C	P	P	P	P	P
Transvaal	C	P	P	P	P	P
Yugoslavia (see table below).	C	P	P	P	P	P
Chosen: Seoul	C	1	1	1	1	1
Czechoslovakia	C	1	1	1	1	1
France	C	6	3	7	1	1
Greece: Athens	C	1	1	1	1	1
Latvia	C	1	1	1	1	1
Lithuania	D	1	1	1	1	1

1 Press reports show that 10 deaths from typhus fever occurred in Sao Paulo, Brazil, from Nov 3 to 30, 1929.

YELLOW FEVER

Since August 1, 1929, the following cases of yellow fever have been reported: Nicaragua, Brazil, 1 case, Rio de Janeiro, Brazil, 2 cases; Monrovia, Liberia, 1 case. All occurred during the month of September, 1929.

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42 OCT 11 1930
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SPECIAL ARTICLES

The Epidemiology of Narcotic Drug Addiction
A Public Health Survey of Pine Bluff, Arkansas



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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. R. C. WILLIAMS, *Chief of Division*

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FURTHER OBSERVATIONS ON THE EPIDEMIOLOGY OF NARCOTIC DRUG ADDICTION¹

By W. L. TREADWAY, *Surgeon, Chief of Narcotics Division, United States Public Health Service*

The collection of further information respecting the individual characteristics of those coming within the purview of the antinarcotic laws allows the compilation of additional data with special reference to the epidemiology of drug addiction. A previous report dealing with certain phases of this subject appeared in the Public Health Reports for November 8, 1929.

During the four months' period beginning July 1, 1929, and ending October 31, 1929, 2,407 persons were reported as violators of the antinarcotic laws. Of this number, 2,040 were formally arrested and 367 were placed under surveillance of one kind or another. Of the 2,040 persons formally arrested, 1,996 were unregistered persons under the Harrison narcotic law and 44 were registered, including physicians, dentists, pharmacists, veterinary surgeons, and others. Of the 367 placed under surveillance, 162 were unregistered and 205 were registered under the Harrison Narcotic Act.

The geographical distribution of the unregistered class, embracing 2,158 persons, is widely scattered. Those States having the greatest proportions, however, are as follows: Illinois, 259, or 12 per cent; Michigan, 214, or 10 per cent; New York, 208, or 10 per cent; California, 157, or 7 per cent; Territory of Hawaii, 144, or 7 per cent; and Missouri, 134, or 6 per cent. The geographical distribution of the registered group, embracing 249 persons, is also widely scattered, those States having the highest proportions are as follows: Illinois, 70, or 28 per cent; Wisconsin, 69, or 28 per cent; Georgia, 16, or 6 per cent; Florida, 11, or 4 per cent; and Indiana, 7, or 3 per cent.

Of the total of 2,158 unregistered persons involved, 1,593, or 74 per cent, were addicted to the use of habit-forming drugs; and of the 249 in the registered group, 67, or 27 per cent, were addicts.

Table 1 sets forth the charges of those formally arrested and of those under other surveillance, classified by sex and registration or nonregistration, unregistered and registered persons grouped as addicts, nonaddicts, and unknown addicts.

¹ Acknowledgment is made here to Deputy Commissioner of Prohibition L. G. Nutt and his colleagues for their courteous cooperation in furnishing reports on violations of the antinarcotic laws.

TABLE 1.—*Classification of violators arrested*

Charge	Unregistered								
	Addicts			Nonaddicts			Unknown		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Possession.....	570	475	95	70	53	17	3	1	2
Sale.....	549	450	99	429	354	75	5	4	1
Forging prescriptions.....	30	17	13	5	4	1			
Vagrancy account drug addiction.....	95	82	13						
Drug addict.....	130	118	12						
Sale and conspiracy.....				9	9				
Purchase.....	72	57	15	21	15	6			
Prescribing for addicts.....									
Sending drugs through mail.....	2	1	1	1	1				
Failure to register and destruction of evidence.....									
Unlawful importation of drugs.....	2	2							
Failure to keep records.....									
Transporting drugs.....	1		1	2	2				
Total.....	1,451	1,202	249	537	438	99	8	5	3

Charge	Registered								
	Addicts			Nonaddicts			Unknown		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Possession.....									
Sale.....	3	3		33	33				
Forging prescriptions.....	2	2		2	2				
Vagrancy account drug addiction.....									
Drug addict.....									
Sale and conspiracy.....				1	1				
Purchase.....									
Prescribing for addicts.....	1	1		2	2				
Sending drugs through mail.....									
Failure to register and destruction of evidence.....									
Unlawful importation of drugs.....									
Failure to keep records.....									
Transporting drugs.....									
Total.....	6	6		38	38				

TABLE 1A.—*Classification of those under surveillance*

Charge	Unregistered								
	Addicts			Nonaddicts			Unknown		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Failure to keep proper record.....				1	1				
Unlawful purchase.....									
Sale.....	18	14	4	8	7	1	3	3	
Possession.....	68	67	1	3	3				
Forging prescriptions and illegal use of drug.....	6	3	3	2	2				
Drug addicts.....	50	31	19	1		1			
Prescribing for addicts.....									
Filing unsigned prescriptions.....				1	1				
Improperly writing prescriptions.....									
Failure to register and filing prescriptions.....				1		1			
Total.....	142	115	27	17	14	3	3	3	

TABLE 1A.—*Classification of those under surveillance—Continued*

Charge	Registered								
	Addicts			Nonaddicts			Unknown		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Failure to keep proper record.....	18	18	—	44	44	—	1	1	—
Unlawful purchase.....	—	—	—	6	6	—	—	—	—
Sale.....	4	4	—	10	10	—	—	—	—
Possession.....	—	—	—	1	1	—	—	—	—
Forging prescriptions and illegal use of drug.....	30	30	—	6	6	—	1	1	—
Drug addicts.....	9	9	—	—	—	—	—	—	—
Prescribing for addicts.....	—	—	—	21	21	—	—	—	—
Filling unsigned prescriptions.....	—	—	—	31	29	2	1	1	—
Improperly writing prescriptions.....	—	—	—	20	20	—	—	—	—
Failure to register and filling prescriptions.....	—	—	—	2	2	—	—	—	—
Total.....	61	61	—	141	139	2	3	3	—

Of the 1,996 unregistered persons arrested, 1,427 were charged with violation of Federal law, 566 with violation of State laws, and for 3 this information was unknown: while of the 44 registered persons arrested, 42 were charged under Federal law and 2 under State laws.

Tables 2 and 3 are composite pictures of the age distribution by 5-year age periods, classified by sex, color, and registration or nonregistration under the Harrison narcotic law. Figure 1 graphically illustrates the age distribution by percentage of all addicts involved irrespective of sex, color, or registration status and also of both male and female addicts.

TABLE 2.—*Age in 5-year periods of male addicts, by color*

Color	Unregistered												
	Total	Un-known age	Under 15	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 and over
White.....	823	6	—	6	86	140	183	182	95	53	32	23	17
Black.....	171	1	—	3	16	33	44	28	22	10	7	3	4
Yellow.....	322	—	—	—	7	33	43	35	28	33	37	36	70
Red.....	1	—	—	—	—	1	—	—	—	—	—	—	—
Total.....	1,317	7	—	9	109	207	270	245	145	96	76	62	91

Color	Registered												
	Total	Un-known age	Under 15	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 and over
White.....	66	—	—	—	—	1	3	4	6	9	17	9	17
Black.....	1	—	—	—	—	—	—	—	1	—	—	—	—
Yellow.....	—	—	—	—	—	—	—	—	—	—	—	—	—
Red.....	—	—	—	—	—	—	—	—	—	—	—	—	—
Total.....	67	—	—	—	—	1	3	4	7	9	17	9	17

TABLE 3.—Age in 5-year periods of female addicts, by color

Color	Unregistered												
	Total	Un-known age	Under 15	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 and over
White.....	201			3	25	60	29	30	23	17	6	4	4
Black.....	71				4	13	19	16	10	4	2	2	1
Yellow.....	4				1		1	1	1				
Red.....													
Total.....	276			3	30	73	49	47	34	21	8	6	5

Color	Registered												
	Total	Un-known age	Under 15	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 and over
White.....													
Black.....													
Yellow.....													
Red.....													
Total.....													

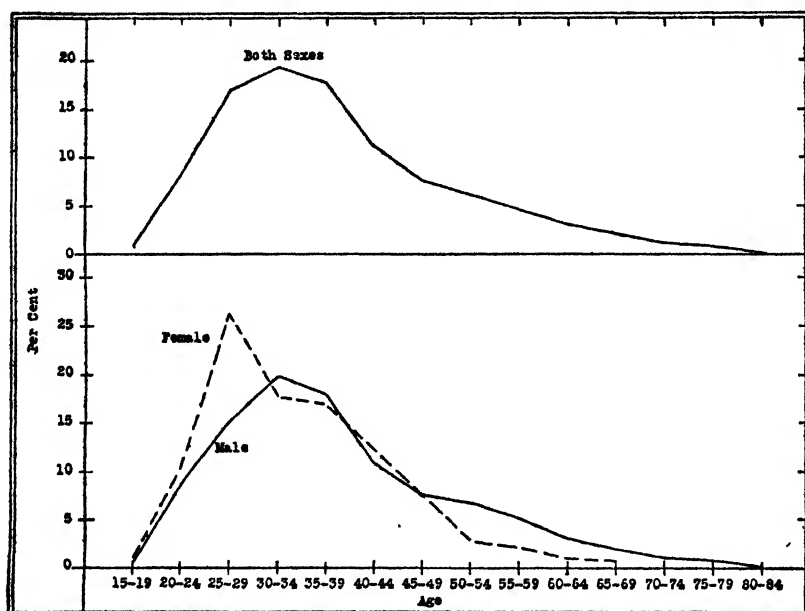


FIGURE 1.—Percentage of drug addicts in each 5-year age group (based on 1,384 male and 270 female unregistered and registered addicts of all colors)

The average age of drug addicts as shown by the 1,660 individuals involved is 38 years, while the average age for the 1,384 males is 38.8 years and for the 276 females 34.2 years.

Table 4 is a compilation of the birthplace of all addicts with special reference to urban, suburban, or rural birth, together with the

nativity of the parents. It will be observed that of the 1,593 unregistered persons involved more than half, or 837, were native born of native parentage and that more than a half, or 521, of those native born were reared in urban communities. A somewhat similar situation with respect to the foreign born of foreign parentage is observed regarding the community of origin; thus of the 349 foreign born, 231 had their origin in urban communities.

TABLE 4.—*Birthplace of addicts and parents*

Birthplace	Unregistered			Registered		
	Total	Male	Female	Total	Male	Female
Native of native parentage:						
Urban.....	521	412	109	12	12	-----
Suburban.....	56	43	13	2	2	-----
Rural.....	227	167	60	37	37	-----
Unknown.....	33	24	9	-----	-----	-----
Native of mixed parentage:						
Urban.....	56	44	12	2	2	-----
Suburban.....	4	4	-----	-----	-----	-----
Rural.....	6	5	1	2	2	-----
Unknown.....	1	-----	1	-----	-----	-----
Native of foreign parentage:						
Urban.....	147	130	17	3	3	-----
Suburban.....	6	6	-----	-----	-----	-----
Rural.....	21	15	6	-----	-----	-----
Unknown.....	6	5	1	-----	-----	-----
Native of unknown parentage:						
Urban.....	71	49	22	1	1	-----
Suburban.....	9	6	3	-----	-----	-----
Rural.....	26	22	4	-----	-----	-----
Unknown.....	16	12	4	2	2	-----
Foreign of native parentage:						
Urban.....	-----	-----	-----	-----	-----	-----
Suburban.....	-----	-----	-----	-----	-----	-----
Rural.....	-----	-----	-----	-----	-----	-----
Unknown.....	-----	-----	-----	-----	-----	-----
Foreign of mixed parentage:						
Urban.....	5	4	1	-----	-----	-----
Suburban.....	-----	-----	-----	-----	-----	-----
Rural.....	3	3	-----	-----	-----	-----
Unknown.....	-----	-----	-----	-----	-----	-----
Foreign of foreign parentage:						
Urban.....	231	224	7	-----	-----	-----
Suburban.....	15	14	1	-----	-----	-----
Rural.....	79	77	2	1	1	-----
Unknown.....	24	22	2	-----	-----	-----
Foreign of unknown parentage:						
Urban.....	-----	-----	-----	-----	-----	-----
Suburban.....	1	1	-----	-----	-----	-----
Rural.....	-----	-----	-----	-----	-----	-----
Unknown.....	-----	-----	-----	-----	-----	-----
Unknown of native parentage:						
Urban.....	-----	-----	-----	-----	-----	-----
Suburban.....	-----	-----	-----	-----	-----	-----
Rural.....	-----	-----	-----	-----	-----	-----
Unknown.....	-----	-----	-----	-----	-----	-----
Unknown of mixed parentage:						
Urban.....	-----	-----	-----	-----	-----	-----
Suburban.....	-----	-----	-----	-----	-----	-----
Rural.....	-----	-----	-----	-----	-----	-----
Unknown.....	-----	-----	-----	-----	-----	-----
Unknown of foreign parentage:						
Urban.....	-----	-----	-----	-----	-----	-----
Suburban.....	-----	-----	-----	-----	-----	-----
Rural.....	1	1	-----	-----	-----	-----
Unknown.....	-----	-----	-----	-----	-----	-----
Unknown of unknown parentage:						
Urban.....	1	-----	1	1	1	-----
Suburban.....	-----	-----	-----	-----	-----	-----
Rural.....	-----	-----	-----	-----	-----	-----
Unknown.....	27	27	-----	4	4	-----
Total.....	1,593	1,317	276	67	67	-----

The country of birth of all individuals reported as violators of the antinarcotic laws, classified as addicts, nonaddicts, and unknown, is set forth in Table 5. Of the 1,593 unregistered addict violators, 1,178 were natives of the United States, whereas 268 were natives of China. The latter are usually smokers of opium.

TABLE 5.—Country of birth of violators

Country of birth	Addicts						Nonaddicts						Unknown					
	Unregistered			Registered			Unregistered			Registered			Unregis-tered			Regis-tered		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
United States.....	1,178	918	260	61	61	—	484	386	98	150	148	2	3	1	2	2	2	—
Territory of Alaska.....	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Territory of Hawaii.....	11	9	2	—	—	—	3	3	—	—	—	—	1	1	—	—	—	—
Philippine Islands.....	3	3	—	—	—	—	2	2	—	1	1	—	—	—	—	—	—	—
Porto Rico.....	13	13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Panama.....	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—
England.....	2	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ireland.....	2	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Scotland.....	2	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
France.....	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Norway.....	1	1	—	—	—	—	—	—	—	2	2	—	—	—	—	—	—	—
Sweden.....	1	1	—	—	—	—	—	—	—	2	2	—	—	—	—	—	—	—
Finland.....	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Poland.....	—	—	—	—	—	—	1	1	—	1	1	—	—	—	—	—	—	—
Hungary.....	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Austria.....	4	4	—	—	—	—	3	3	—	1	1	—	—	—	—	—	—	—
Germany.....	4	2	2	—	—	—	1	1	—	4	4	—	—	—	—	—	—	—
The Netherlands.....	2	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Greece.....	1	1	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—
Italy.....	4	4	—	—	—	—	18	18	—	—	—	—	—	—	—	—	—	—
Russia.....	7	4	3	—	—	—	1	1	—	5	5	—	—	—	—	—	—	—
China.....	268	267	1	—	—	—	12	12	—	—	—	—	—	—	—	—	—	—
Japan.....	18	18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mexico.....	24	24	—	—	—	—	13	10	3	2	2	—	1	1	—	—	—	—
Brazil.....	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
British Guiana.....	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—
Venezuela.....	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—
Chile.....	2	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Africa.....	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—
Canada.....	7	6	1	1	1	—	3	3	—	4	4	—	—	—	—	—	—	—
Cuba.....	3	3	—	—	—	—	4	3	1	—	—	—	—	—	—	—	—	—
West Indies.....	2	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Syria.....	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—
Unknown.....	20	28	1	5	5	—	5	5	—	5	5	—	6	5	1	1	1	—
Total.....	1,593	1,317	276	67	67	—	554	452	102	179	177	2	11	8	3	3	3	—

The educational status of the reported violators has been classified into seven groups, embracing the illiterate who can not read or write, those who are able to read and write, those having a common-school, high-school, college, or professional education, and also those of unknown educational standard. These data are set forth in Table 6.

TABLE 6.—*Education of addicts*

Education	Unregistered			Registered		
	Total	Male	Female	Total	Male	Female
Illiterate.....	131	119	12			
Read and write.....	139	126	13			
Common school.....	938	772	166			
High school.....	245	180	65			
College.....	47	35	12			
Professional.....	10	10		67	67	
Unknown.....	83	75	8			
Total.....	1,593	1,317	276	67	67	

The age on leaving school and the grade reached for the total array of individuals involved is shown in Table 7, which is, perhaps, a better index of the educational level of this group. It corresponds in general, however, with the distribution of the educational level of a general population.

TABLE 7.—*Age of addicts when leaving school and grade reached*

Age leaving school	Unregistered			Registered		
	Total	Male	Female	Total	Male	Female
No school.....	37	33	4			
8 years.....	9	7	2			
9 years.....	13	12	1			
10 years.....	36	33	3			
11 years.....	20	18	2			
12 years.....	67	51	16			
13 years.....	74	52	22			
14 years.....	239	193	46			
15 years.....	183	145	38			
16 years.....	205	162	43			
17 years and over.....	363	306	57	55	55	
Unknown.....	347	305	42	12	12	
Total.....	1,593	1,317	276	67	67	

Grade reached	Unregistered			Registered		
	Total	Male	Female	Total	Male	Female
First grade.....	13	10	3			
Second grade.....	23	20	3			
Third grade.....	44	40	4			
Fourth grade.....	83	67	16			
Fifth grade.....	101	81	20			
Sixth grade.....	107	81	26			
Seventh grade.....	135	108	27			
Eighth grade.....	349	282	67			
High school, not 4 years.....	230	179	51			
High school, complete.....	34	24	10			
College.....	51	41	10	62	62	
Unknown.....	423	384	39	5	5	
Total.....	1,593	1,317	276	67	67	

The employment history of the group involved in formal and other forms of arrest is worthy of study as a means of evaluating the ability by which individuals of this class may be able to project their men-

tality on the outside world as a means of earning a living. Of the 2,407 individuals reported as violating the antinarcotic laws, 925 were regularly employed, 1,288 irregularly employed, and for 194 employment history was unknown. Of the 925 regularly employed, 50 were dependent, 606 marginal, and 269 were in comfortable economic circumstances; of the 1,288 irregularly employed, 344 were dependent, 886 marginal, and 58 in comfortable economic circumstances; and of the 194 whose employment history was unknown, 27 were dependent, 60 marginal, 25 comfortable, and 82 unknown whether dependent, marginal, or comfortable. It will be observed that a large proportion of those addicted to the use of habit-forming drugs were irregularly employed and on the whole a large proportion were either dependent or of marginal economic circumstances. It is generally recognized that the cost of drugs necessary for maintaining addiction tends to impoverish, not only the individual concerned, but his family as well. Drug addiction is, therefore, an economic problem.

The habitual use of alcohol is sometimes associated with drug addiction. In some instances excessive indulgence in alcohol is found in the early history of a proportion of drug addicts, but as a general rule the habitual use of alcohol is not associated with drug addiction. The individual who resorts to the excessive and habitual use of alcohol appears to be somewhat different in mental make-up from those who resort to narcotic drugs. Table 8 sets forth the age distribution and use of alcohol, classified as male and female addicts.

TABLE 8.—*Use of alcohol by addicts*

Ages by 5-year periods	Unregistered											
	Male					Female						
	Total	Unknown	Unknown quantity	Abstainer	Moderate	Excessive	Total	Unknown	Unknown quantity	Abstainer	Moderate	Excessive
Under 15 years	9			7	2		3			2	1	
15 to 19 years	109	5	7	94	13		30		1	25	3	1
20 to 24 years	207	15	12	140	39	1	73	1	6	64	11	1
25 to 29 years	273	18	19	192	42	2	49	2		40	6	1
30 to 34 years	242	12	10	177	40	3	47	1	2	37	6	1
35 to 39 years	145	13	4	94	33	1	34		1	26	7	
40 to 44 years	96	11	1	66	13		21			20	1	
45 to 49 years	76	5	1	56	14		8		1	7		
50 to 54 years	62	8		45	9		6			6		
55 to 59 years	91	1	2	73	14	1	5			5		
60 years and over	7	4		2	1							
Unknown												
Total	1,317	92	56	936	225	8	276	4	11	222	35	4

TABLE 8.—*Use of alcohol by addicts—Continued*

Ages by 5-year periods	Registered									
	Male					Female				
	Total	Unknown	Unknown quantity	Abstainer	Moderate	Excessive	Total	Unknown	Unknown quantity	Abstainer
Under 15 years.....										
15 to 19 years.....										
20 to 24 years.....										
25 to 29 years.....	1			1						
30 to 34 years.....	3			2		1				
35 to 39 years.....	4			3	1					
40 to 44 years.....	7		1	0						
45 to 49 years.....	9	2	1	5	1					
50 to 54 years.....	17		1	13	2	1				
55 to 59 years.....	9		1	8						
60 years and over.....	17	1	1	12	2	1				
Unknown.....										
Total.....	67	3	5	50	6	3				

Like chronic alcoholism, narcotic drug addiction becomes established at a much earlier age than is generally supposed. Table 14 sets out the age at which drug addiction has become established in the 1,660 cases of addicts reported. It will be observed that of these 1,660 cases, in 996 cases drug addiction was established between the ages of 20 and 34, or 60 per cent, and of the total cases involved 320, or 19 per cent, became established between the ages of 25 and 29, and 779, or 47 per cent, became established under the age of 24.

TABLE 9.—*Age drug addiction was established*

Age	Unregistered			Registered		
	Total	Male	Female	Total	Male	Female
Under 15 years.....	16	13	3	1	1	
15 to 19 years.....	275	221	54			
20 to 24 years.....	485	399	86	2	2	
25 to 29 years.....	314	243	71	6	6	
30 to 34 years.....	177	140	37	12	12	
35 to 39 years.....	91	84	7	11	11	
40 to 44 years.....	33	30	3	7	7	
45 to 49 years.....	16	14	2	6	6	
50 to 54 years.....	10	8	2	7	7	
55 to 59 years.....	5	5		2	2	
60 years and over.....	8	8		4	4	
Unknown.....	163	152	11	9	9	
Total.....	1,592	1,317	276	67	67	

Table 10 is a compilation respecting the kind of drugs used by the 1,660 addicts. The drugs are classified as drugs of choice. In the same tabulation will be found the methods of administering the drug.

TABLE 10.—*Drugs used by addicts and how administered*

Drug of choice	Unregistered			Registered		
	Total	Male	Female	Total	Male	Female
Morphine.....	990	760	230	64	64	.....
Codeine.....	.....	.....	.....	1	1	.....
Heroin.....	106	98	8	.....	.....	.....
Other alkaloids.....	.....	.....	.....	1	1	.....
Other forms—laudanum, paregoric, etc.....	8	7	1	.....	.....	.....
Opium not otherwise specified.....	353	342	11	.....	.....	.....
Morphine and heroin.....	32	28	9	.....	.....	.....
Morphine and opium.....	22	18	4	.....	.....	.....
Heroin and opium.....	1	1	.....	.....	.....	.....
Morphine, heroin, and other forms.....	3	2	1	.....	.....	.....
None.....	63	55	8	1	1	.....
Unknown.....	15	11	4	.....	.....	.....
Total.....	1,593	1,317	276	67	67	.....
Cocaine.....	295	225	70	9	9	.....
Other coca divisions.....	3	3	.....	.....	.....	.....
None.....	1,283	1,081	202	58	58	.....
Unknown.....	12	8	4	.....	.....	.....
Total.....	1,593	1,317	276	67	67	.....
Hemp.....	1	1	.....	.....	.....	.....
Peyote.....	.....	.....	.....	.....	.....	.....
Chloral.....	.....	.....	.....	.....	.....	.....
Atropine.....	1	.....	1	1	1	.....
Veronal.....	.....	.....	.....	1	1	.....
Other drugs.....	1	.....	1	.....	.....	.....
None.....	1,574	1,304	270	65	65	.....
Unknown.....	16	12	4	.....	.....	.....
Total.....	1,593	1,317	276	67	67	.....

How administered	Unregistered			Registered		
	Total	Male	Female	Total	Male	Female
By mouth.....	19	11	8	5	5	.....
By hypodermic.....	1,121	881	240	50	56	.....
By mouth and hypodermic.....	13	9	4	2	2	.....
By smoking.....	343	333	10	.....	.....	.....
By other methods.....	35	29	6	1	1	.....
By sniffing and hypodermic.....	9	8	1	.....	.....	.....
By mouth and smoking.....	4	4	.....	.....	.....	.....
By hypodermic and smoking.....	8	8	.....	.....	.....	.....
By sniffing.....	15	13	2	.....	.....	.....
Unknown.....	26	21	5	3	3	.....
Total.....	1,593	1,317	276	67	67	.....

The quantity of narcotic drugs necessary to maintain addiction is quite variable. It depends in part upon the idiosyncrasy of the individual, not only from the standpoint of his mental background and temperament, but on a variety of other factors. Table 11 is a compilation of the average daily dose which the addicts themselves indicate is necessary for maintaining themselves in comfort. It serves as an index of the requirements.

TABLE 11.—Daily dose of drug used by addicts

Daily dose	Unregistered			Registered		
	Total	Male	Female	Total	Male	Female
OPIUM ALKALOIDS						
Less than one-half grain.....	2	1	1			
One-half grain but less than 1 grain.....	3	3		3	3	
1 grain, but less than 2 grains.....	41	29	12	5	5	
2 grains, but less than 3 grains.....	76	53	23	7	7	
3 grains, but less than 5 grains.....	199	148	42	8	8	
5 grains, but less than 10 grains.....	363	292	71	23	23	
10 grains, but less than 15 grains.....	320	270	50	4	4	
15 grains, but less than 20 grains.....	154	133	21	5	5	
20 grains or more.....	131	109	25	3	3	
Smoking opium gum, quantity unknown.....	138	135	3			
None.....	60	52	8	1	1	
Unknown quantity.....	115	95	20	8	8	
Total.....	1,593	1,317	276	67	67	
COCA LEAF ALKALOIDS						
Less than one-half grain.....						
One-half grain, but less than 1 grain.....						
1 grain, but less than 2 grains.....	2	2		1	1	
2 grains, but less than 3 grains.....	18	13	5	1	1	
3 grains, but less than 5 grains.....	34	21	13	1	1	
5 grains, but less than 10 grains.....	80	67	13	2	2	
10 grains, but less than 15 grains.....	44	35	9			
15 grains, but less than 20 grains.....	16	14	2			
20 grains or more.....	23	13	10			
None.....	1,294	1,091	203	59	59	
Unknown quantity.....	82	61	21	3	3	
Total.....	1,593	1,317	276	67	67	
OTHER DRUGS						
Less than one-half grain.....						
One-half grain, but less than 1 grain.....						
1 grain, but less than 2 grains.....						
2 grains, but less than 3 grains.....	1		1			
3 grains, but less than 5 grains.....	1		1			
5 grains, but less than 10 grains.....				1	1	
10 grains, but less than 15 grains.....						
15 grains, but less than 20 grains.....						
20 grains or more.....				1	1	
None.....	1,574	1,304	270	65	65	
Unknown quantity.....	17	13	4			
Total.....	1,593	1,317	276	67	67	

Considering Table 11 as a reasonably accurate index of the quantity of opium alkaloids required to maintain addiction, it will be observed that the average quantity of drug necessary is approximately 10.6 grains per day; for coca leaf alkaloids the average is 9.9 grains per day; and for other drugs, including hemp, chloral, veronal, etc., it is 9.7 grains. Of the 1,660 drug addicts involved, 1,338 use opium or its derivatives, and the amount per day of drug necessary for maintaining these 1,338 addicts is 14,152 grains; of the total number of addicts involved, 222 use coca leaf alkaloids, and the amount per day necessary for these 222 addicts is 2,212 grains; and of the total number of addicts, 4 use 39 grains per day of other drugs.

The causes of drug addiction are very multiple, but for purposes of convenience may be divided into precipitate and predisposing. Among the precipitating causes of drug addiction, the influence of other addicts has been alleged as being the most potent cause. Table 12 sets forth the precipitating causes of the 1,660 addicts reported.

TABLE 12.—*Reasons given by addicts for use of drugs*

Reasons for addiction	Unregistered			Registered		
	Total	Male	Female	Total	Male	Female
Previous use of drugs in medical treatment.....	285	204	81	40	40	-----
Self-treatment for relief of pain.....	212	164	28	14	14	-----
Recourse during emotional distress.....	10	9	1	2	2	-----
Influence of other addicts, community.....	594	491	103	3	3	-----
Influence of other addicts, prisons.....	2	2	-----	-----	-----	-----
Curiosity, thrill, bravado, etc.....	112	94	18	2	2	-----
To overcome drunkenness.....	10	9	1	-----	-----	-----
Unknown.....	368	324	44	6	6	-----
Total.....	1,593	1,317	276	67	67	-----

Treatment to relieve an individual from the habit of taking narcotic drugs is also variable. Drug addicts in some instances seek treatment for the purpose of ridding themselves of the slavery of the drug; because relatives and friends insist upon a cure for their habit; because of a desire to impress those concerned with the enforcement of law that they desire to improve their ways; because their temporary isolation during treatment affords a convenient refuge from the police; or because of a desire to reduce the average daily dose so that the resumption of the habit at some subsequent date would be less expensive on account of the quantity of drug required to maintain their comfort. Table 13 serves as an index to illustrate the number of treatments taken by the 1,660 addicts reported.

TABLE 13.—*Number of treatments taken for addiction*

Number of treatments	Unregistered			Registered		
	Total	Male	Female	Total	Male	Female
1 treatment.....	262	217	45	16	16	-----
2 treatments.....	93	71	22	8	8	-----
3 treatments.....	40	32	8	6	6	-----
4 treatments.....	12	7	5	1	1	-----
5 treatments.....	1	1	-----	-----	-----	-----
6 treatments.....	5	5	-----	-----	-----	-----
7 treatments.....	1	1	-----	-----	-----	-----
8 treatments.....	1	1	-----	-----	-----	-----
9 treatments.....	2	1	1	-----	-----	-----
10 or more treatments.....	5	4	1	-----	-----	-----
None.....	957	796	171	33	33	-----
Unknown.....	214	191	23	3	3	-----
Total.....	1,593	1,317	276	67	67	-----

The physical status of the 1,660 addicts reported is classified as follows: Of the 889 white males, 43 were deformed, 163 diseased, and 5 infirm; of the 172 black males, 7 were deformed, 15 diseased, and none infirm; of the 322 yellow males, 4 were deformed, 9 diseased, and 1 infirm; and the 1 red male was not deformed, diseased, nor infirm. Of the 201 white females, none were deformed, 32 diseased, and 2 infirm; of the 71 black females, 1 was deformed, 13 diseased, and

none infirm; and of the 4 yellow females, none were deformed, diseased, or infirm.

Further data dealing with the epidemiology of drug addiction will be published from time to time.

PUBLIC HEALTH SURVEY OF PINE BLUFF, ARK.

By ALLAN J. McLAUGHLIN, *Surgeon, United States Public Health Service*

Pine Bluff is situated on the Arkansas River about 40 miles southeast of Little Rock, the State capital, which is near the center of the State. It is the natural business center for the southeastern half of the State, a low plain sloping gradually to the southeast. The climate is pleasant. Over a period of 45 years the mean annual temperature was 62, with a mean for July of 81 and for December, January, and February of 43. The average annual rainfall is 50 inches. It is an important railroad center served by the Missouri Pacific and the St. Louis Southwestern. The general repair shops of the latter are located in Pine Bluff. It is a trade center for southeast Arkansas, the principal products being cotton and lumber. It is becoming a city of considerable industrial importance and the people employed in the production of cotton and cottonseed oil and by-products, lumber and woodworking industries, grain and feed mills, iron foundries, and various minor industries, together with the men employed in the St. Louis Southwestern Railroad shops, make up an industrial population of probably over 4,000.

Pine Bluff is the third largest city in Arkansas. It covers an area of 5 square miles. Its population in 1910 was 15,102, and in 1920 it was 19,208. A large increase in area by which outlying suburbs are taken into the city gives a larger population than an estimate based on the decennial censuses. The population, according to the city directory of 1929 is 30,000—67 per cent white and 33 per cent colored. The foreign-born population is small, being about 2 per cent.

FINANCIAL

Pine Bluff has a total assessed valuation of property of \$12,511,220—real, \$8,051,230; personal, \$4,459,990. This assessment is about 40 per cent of the true value. The tax rate is \$30.15 per \$1,000. The principal items in the city budget are—

General government.....	\$21, 894. 01
Police department.....	40, 270. 86
Fire department.....	44, 617. 12
Water department.....	17, 186. 65
Light department.....	13, 380. 00
Health conservation.....	5, 756. 65
Streets and sewers.....	26, 454. 94
Schools (special 18 mill tax).....	250, 000. 00

Of the item "Health conservation," only \$3,600 should be charged to the health department. There is an item of \$1,800 for an inspector employed by the mayor, presumably used as a nuisance inspector, who is under neither the direction nor supervision of the health officer. This item is charged to health conservation, but the duties are really police duties.

HOUSING

Pine Bluff has no tenements and no slums. It has grown steadily and not too fast. The price of land is reasonable and houses are, as a rule, detached. It has reached the stage now where city planning should be instituted to obviate the handicaps inevitable in haphazard growth.

WATER SUPPLY

The water is supplied by a private company by contract at a fixed rate for each fire hydrant. The total cost to the city is, in round numbers, \$17,000 per annum. In addition, the citizens pay the company for what they use. The use of the city water is general as indicated by the fact that there are 5,488 metered services. Deep wells are the source of the water, which is of excellent quality. Its safety is checked by the water company weekly and occasionally by the State board of health.

SEWERAGE AND SEWAGE DISPOSAL

The whole city of Pine Bluff is served by two sanitary sewer outfall lines. One line is 18 inches, the other 24 inches in diameter. These lines are laid to discharge at a certain low stage of the river arbitrarily designated 5 on the local gage. This low stage is reached only once in four or five years; consequently at any stage above 5 the sewage is discharged against a head by accumulating sufficient load in the lines to overcome it. When the water reaches 28 on the gage (about three times a year) the sewage is backed up and discharges through the tops of the manholes. Besides the difficulty of a widely fluctuating river level and a rather flat grade, these sewers are now carrying an overload of at least 50 per cent over what they were designed to carry. This problem has already caused some discomfort and inconvenience, but it is a steadily increasing problem; and as the city is growing, some remedial measures must be planned for future relief. While the greater part of the city is sewerred, there are in the outlying districts 780 unsewered homes. In these districts very good work has been done in improving the excreta disposal, and 555 of these homes now have privies of an approved type.

GARBAGE AND REFUSE

There is no municipal system of collection of garbage and refuse in Pine Bluff, which are hauled away by arrangement between the householder and some individual owner of transportation who hauls for the value of the garbage or is paid by the householder. In many instances the householder disposes of garbage on his own premises by burning or burying. Here, again, this growing city is approaching, if it has not actually reached, the point in its growth where the municipal government must put in effect some uniform system of disposal.

MOSQUITO BREEDING

There is a mosquito problem in Pine Bluff, but very little is done to prevent mosquito breeding either along the small water course which traverses the low ground through the city or upon swampy areas and temporary breeding places left after rains in low ground. Last year the city spent \$126 for labor and oil for this purpose, which was the extent of antimalarial measures. A survey should be made of larval breeding places and mosquitoes should be caught to determine the species of adult mosquitoes prevalent.

It is recommended that a request be made through the State health officer, to the Surgeon General of the United States Public Health Service for a malaria survey of Pine Bluff with a plan for the prevention of malaria.

ORGANIZATION OF HEALTH DEPARTMENT

With the meager appropriation of \$3,600 very little health work could be done; this would hardly be sufficient to pay a full-time health officer. Luckily for the city of Pine Bluff a joint health department for the city and Jefferson County is in operation. Its budget is as follows:

County health work.....	\$5,000
United States Public Health Service.....	1,500
Rockefeller (I. H. B.).....	600
State Board of Health, Arkansas.....	600
County board of education.....	2,400
City board of education.....	1,200
Tuberculosis seal sale.....	1,500
Community chest.....	1,500
City health department.....	3,600
	<hr/>
	17,900

Personnel

- 1 health officer, city and county.
- 1 sanitary inspector.
- 1 nurse one-half time dental hygiene, one-half public health nursing.
- 2 nurses generalized.
- 1 nurse, school.
- 1 technician, laboratory, one-half time; clerk one-half time.

Besides this personnel there is the mayor's inspector, who does something about nuisances, and a full-time nurse of the Metropolitan Life Insurance Co., who does considerable work in visiting prenatal postnatal, and infant welfare cases. This is the entire personnel available for health work in both city and county.

VOLUNTARY AGENCIES IN THE HEALTH FIELD

In strictly public-health work, other than that of the joint health department, there is no personnel operating in Pine Bluff except the one nurse of the Metropolitan Life Insurance Co. The close relation between health work and the work of hospitals, dispensaries, and the care of the sick poor compels inclusion of these facilities in any survey of health activities. There is one hospital, the Davis Hospital, under the auspices of the Baptist Church. It has 50 beds, a competent staff of 6 surgeons, 1 X-ray technician, 1 eye, ear, nose, and throat specialist, and 1 pediatrician. It has a budget of about \$45,000. It has a training school for nurses, with 28 student nurses. It has a well-equipped operating room, X-ray machine, and laboratory. It admits patients of any of the 36 doctors in Pine Bluff. The ward rate is \$3 per day, while the rate for private rooms is from \$4 to \$5 per day. It has three beds for obstetrical cases and a delivery room. It had 69 deliveries in 1928. There is one free bed (Associated Charities). The hospital has no out-patient department. A hospital for colored patients, called the Links Hospital, not yet fully equipped, expects to have 50 beds. It is open to all doctors, white and colored, and expects to give a semicharity rate of \$1.50 per day. Even if the Links Hospital completes its 50 beds the available beds for city and county is too low. More serious is the lack of out-patient clinics for ambulant indigent cases. It should be possible to establish these in connection with the hospitals, the indigent cases to be paid for by the city at a fair rate. At present the city is doing very little for its sick poor. This is another problem of the growing small city which Pine Bluff will have to face. There are a number of social agencies whose work is intimately associated with health, such as the Associated Charities, the Red Cross, and the Salvation Army.

The lines of demarcation of their fields of activity are none too clear. It ought to be feasible to simplify procedure by having one clearing house for sick relief which has a direct bearing on the charity burden. If this could not be assigned to the Associated Charities alone, then some arrangement for a joint committee to certify indigents for treatment should be made. I understand that there is a confidential exchange for the county to prevent duplication and to serve as a clearing house for information and knowledge of methods and plans for treatment. There is also in the county a council of welfare workers which would appear to be a more logical clearing house than the

Confidential Exchange; but for the city of Pine Bluff the Associated Charities would seem to be the logical agency either alone or with a representative of each of the other welfare and church organizations concerned in the charities and its inseparable companion sick relief. It is recommended that an effort be made to have established at both the Davis Hospital and the new Links Hospital out-patient departments in which ambulant indigent cases could be treated by a rotating service of the present staffs. If necessary, additional practicing physicians could be added to the staffs for this purpose. The service rendered for the indigent sick should be paid for at reasonable rates by the city, and cases should be certified as indigent by the Associated Charities. This service would secure early treatment and prevention of disease, obviating much of the hospital treatment made necessary by neglect of early cases. It would greatly lessen the burden on charity funds.

GENERAL SANITARY INSPECTIONS

The total annual inspections, exclusive of plumbing, smoke, food, and communicable disease, numbered 1,542. Of these, 909 were nuisances, various kinds, on private premises, 555 were for excreta disposal, and 78 for water supplies.

Food.—There is no personnel available to furnish an adequate control of food and food handlers. There is no inspection of restaurants, hotels, bakeries, meat markets, and candy and soft drink stores. There is no inspection of slaughtering or other inspection of the handling of meats. About 50 per cent of meat is from the big packing companies having Federal inspection. One slaughterhouse in Pine Bluff, without inspection, handles 25 per cent of meat used in the city. The other 25 per cent is slaughtered wherever the animal happens to be. Slaughtering should be permitted only in a municipal abattoir under a rigid inspection by a veterinarian. Considerable revenue would be derived from fees for each animal slaughtered. The initial cost and the interest on the cost of construction of an abattoir with the veterinarian's salary are considerable items, and it is doubtful whether the fees collected would cover these for the first years. The actual saving of life and prevention of disease is small compared with other health activities such as child hygiene and communicable disease control.

It is recommended that an ordinance be passed if more specific authority is needed to provide for an inspection of food and food handlers, of restaurants, hotels, bakeries, meat markets, and candy and soft drink stores. Inspection of meat and the restriction of slaughtering to a municipal abattoir under rigid inspection are desirable additions to public health protection. The expense of such

a system is scarcely justifiable at this time, but is something that must be assumed in the future, perhaps when Pine Bluff exceeds 50,000 population, and after more urgent needs in the field of public health are satisfied.

Milk.—In the control of milk, especially raw milk, the health department has a real achievement to its credit. If we take out the points allowed for pasteurization, we should be obliged to give a perfect score for milk control to the health department. Only 10 to 12 per cent of milk is pasteurized in Pine Bluff. The pasteurizing plant is equipped with recording thermometers and flush valves. The 17 dairies furnishing milk to the pasteurizing plant were inspected not less than five times per year and the pasteurization plant not less than once each week. Eighty per cent of samples of pasteurized milk showed counts below 50,000 bacteria per cubic centimeter. The 34 farms delivering raw milk direct were inspected three hundred and six times, an average of nine times a year for each; 252 samples of this raw milk were analyzed and 98 per cent showed counts of below 500,000 bacteria per cubic centimeter. The sanitary inspector operates under the standard milk ordinance and by frequent inspections in a rather compact territory has been able to compensate somewhat for the low percentage of pasteurized milk by enforcing the production of a raw milk well within the limits fixed.

The work done in control of milk is of such an excellent character that the only recommendation made is to continue this high standard of control. It is hoped that the percentage of pasteurized milk will increase, as it is low, only 10 or 12 per cent, but in the meantime a fine measure of safety is insured by the control exercised over raw milk by the health department.

LABORATORY

There is a good beginning in laboratory work in Pine Bluff. There is a capable technician for routine typhoid, diphtheria, tuberculosis, and urine examinations. Wassermann and gonococcus examinations are made at the State board of health laboratory at Little Rock. Water analyses and milk analyses are also done in considerable numbers. The technician gives part time to the laboratory and part time to clerical work, consequently with the large numbers of milk and other analyses the use of the laboratory for diagnosis of communicable diseases as an aid to physicians is restricted. Release cultures for diphtheria are made, but typhoid cases are discharged without the usual negative cultures.

While the laboratory has made a good beginning, it is recommended that the work of the technician be full time to meet increased examinations which seem obviously necessary. More work should be done to help local physicians in diagnosis. No typhoid cases should be discharged without at least two negative cultures of excreta. A

greater number of contact cultures in diphtheria should be made. If increased personnel for follow-up and case finding work can be furnished better reporting will follow and a marked increase in laboratory work will be necessary for all communicable diseases.

CONTROL OF COMMUNICABLE DISEASES

Control of communicable diseases is directed by the health officer, who is assisted by the three health department nurses. For diphtheria, typhoid, and scarlet fever the investigation of cases is made by the nurses, and individual epidemiologic cards are filled out and filed. The health officer acts as consultant to determine the diagnosis of doubtful cases. There is no hospital available for contagious diseases in Pine Bluff and all cases must be quarantined or isolated in the homes.

Reporting.—The reporting of typhoid fever is very incomplete. In the three years 1926, 1927, and 1928, 52 deaths were reported, while only 99 cases were reported—less than 2 cases per death. On the average for the three years less than 7 cases of diphtheria per death were reported. Scarlet fever was a little better reported, but still far below the standard, as only 52 cases were reported to 2 deaths. Measles was incompletely reported also, the average for 3 years being 20 cases per death instead of the standard of approximately 60 cases per death. Whooping cough was reported in the ratio of less than 3 cases per death instead of a standard ratio of 25 cases per death.

Diphtheria control.—As previously noted, contacts are cultured, but only children are held in isolation until cultures are proved negative. About 50 per cent of household contacts under 15 years of age were passively immunized last year. Antitoxin is not given free; the family or physician must pay. The Schick test is not employed to determine immunity. In 1929, 75 children were given toxin-antitoxin injections.

Smallpox control.—There is no record of adult vaccinations, but 100 per cent of the pupils were vaccinated on entrance to school.

Scarlet fever.—Quarantine for 28 days with isolation of contacts for 10 days.

Visits to cases.—The following gives data regarding visits to cases:

Disease	Cases	Visits
Diphtheria.....	9	27
Scarlet fever.....	49	151
Typhoid.....	6	24
Measles.....	28	84
Whooping cough.....	17	51

This gives an average of three visits per case instead of the standard of four.

The need for more public health nurses in communicable disease control is urgent. There are not enough of the cases reported and not as many of the mild cases found which do not call a doctor as

should be found. Of the cases reported, too few visits are made. School hygiene work helps in case finding, and with a greater activity in prenatal and infant hygiene more cases will be found; and so not only are more nurses needed for infant and maternal welfare itself, but these will increase the need of more work in communicable disease control.

Venereal disease control.—There is nothing being done in venereal disease control, except administration of a few doses of salvarsan by the health department, to render indigents noninfective. Reporting is falling off. The State board of health reports for Pine Bluff 184 cases of syphilis in 1926, 272 cases in 1927, and only 14 cases in 1929. The State board of health also reports 212 cases in 1928 in Pine Bluff discontinuing treatment while disease is still communicable. Only 12 new cases were diagnosed in 1929.

There is need for more follow-up and case finding in venereal diseases, the lack of which is due to shortage in personnel. Reporting has practically ceased and investigation of sources and contacts is not possible without increasing the present number of nurses.

Tuberculosis.—Case finding and reporting are very inadequately done. In the three years 1926, 1927, and 1929 there were 43 cases and 180 deaths reported. It is said that the State sanatorium does not report cases discharged from the sanatorium and returning to city. There are facilities in the health department for examining patients but no regular clinic sessions. During 1929, 47 patients were examined in the health department clinic. Twelve of these were new cases, of which nine were sent to the State sanatorium, four of which had not passed the incipient stage. Eight contacts were examined. Visits to tuberculous patients were made as follows: 89 by the health department nurses and 36 by the Metropolitan Life Insurance Co. nurse, a total of 125. Cases registered at present with health department, 3; with Metropolitan nurse, 2.

An additional nurse is necessary to increase activity in case-finding and follow-up work. A tuberculosis clinic should be held frequently at which should be available an expert diagnostician in incipient tuberculosis. It should be held by the health department under the auspices of the local medical society.

MATERNAL AND INFANT HYGIENE

There were 478 births in Pine Bluff in 1929. Of these, 263 were delivered by midwives and 215 by physicians. Of the 215 delivered by physicians, 52 were confined in a private hospital which has obstetric facilities (Davis hospital). There is no prenatal clinic and no prenatal service except the prenatal visits (228) by a nurse of the Metropolitan Life Insurance Co. Twenty-three cases were reported to this nurse at least three months before pregnancy. There is no baby welfare clinic, but the Metropolitan nurse made 328 visits to

new-born babies and a total of 440 post-natal visits. In addition to these she made 85 infant welfare visits (children under one year).

There were registered and licensed by the State 75 midwives in Pine Bluff, and a very creditable effort is made by the health department to raise their standards and improve their methods. Bimonthly classes are held. Instruction is given by the health department nurses, and the average attendance at class is 41 per cent.

As Pine Bluff grows, a prenatal clinic attached to a small obstetrical unit with expert consultant obstetric advice will become a necessity. At present it is recommended that many more prenatal visits be made to a larger number of expectant mothers registered at least three months before delivery. This will necessitate more nursing service. The development of the prenatal clinic will follow after a greatly increased activity in prenatal service. There should be established at once a baby welfare clinic, not only for its value to infants but as a gateway to the field of preschool hygiene. This will necessitate more nursing service.

PRESCHOOL HYGIENE

Very little preschool hygiene is provided. There are no infant welfare clinics, which always serve as an entrance to this field. The health officer has attempted, with considerable success, to secure control of some preschool children through the parent-teachers association. He has held a preschool clinic during the first week in May of each year and physical examination of many children who enter school the following year were made. Defects were noted and their correction was recommended to the parents.

It is recommended that the health officer continue the good work started in cooperation with the local medical society and the parent-teachers association the first week of May and that the baby welfare clinic be used for preschool clinic service as well as throughout the year. With increased public health nursing activity in prenatal and infant hygiene and in communicable disease visiting and follow-up, many more preschool children will be brought under medical supervision.

SCHOOL HYGIENE

With the very limited funds and personnel available, the health officer has shown excellent judgment in concentrating on the hygiene of the school child. The desirability of preschool child examinations is obvious, but the difficulty of finding portals of entrance into this field and acquiring control of any considerable percentage of the children of preschool age must also be considered where funds are limited. In the school-age group access to 100 per cent makes it the more practicable field, if insufficient funds make a choice necessary as between the two fields of activity.

The board of education pays the salary of one school nurse (\$1,200 for nine months' work), and she works under the direction of the health officer, who acts as school physician. One nurse, one-half time, acts as dental hygienist. A colored public health nurse is now employed, and similar work is being started in the colored schools.

There is excellent cooperation by the teaching personnel in excluding pupils suspected of having a communicable disease, who are followed up and visited by nurse, physician, or both. Every child in all grades from one to six is examined three times each year by the physician. This examination includes vision, teeth, throat, and nutrition. Hearing is not tested, and heart examination is for the purpose of finding gross lesions only. Cards are kept for each child and the defects and corrections are noted, but lack of clerical help has prevented the compiling of the statistics from the cards.

	Defects		1928	1929
Teeth.....			2, 834	1, 885
Throat.....			779	705

The reduction in the number of defects in 1929 does not accurately express the corrections. There is a primary class in 1929 not examined in 1928 and a sixth grade examined in 1928 which was not examined in 1929. These do not exactly balance each other (there probably were more defects in the class entering than in the class graduating), but the difference between 1928 and 1929 is in greatest measure due to corrections even if it does not express corrections exactly. This would indicate that about 33 per cent of teeth defects and about 10 per cent of throat defects were corrected.

In addition to the physical examination, health instruction is stressed. In grades 1, 2, and 3, 75 minutes per week is devoted to health instruction of an elementary character. In grades 4, 5, and 6, 150 minutes per week are devoted to health instruction from textbooks. This is independent of the gymnasium instruction, 250 minutes per week, given to eighth-grade pupils.

Essays on health, health books, and posters are employed, lessons in ventilation, keeping of weight and height records, health clubs, and other methods of focusing the child's interest upon health are used. All children are weighed every six weeks and those underweight are weighed once each week.

Outside of the school grounds, which are small, there is no playground development or playground association.

School hygiene work should be expanded from the splendid work now being done in the first six grades of the white schools to the colored grades from one to six and in the high school of both white and colored. The same service should be rendered to the parochial schools upon their request.

SUMMARY

An attempt has been made to outline the necessary additions to existing machinery to complete a well-rounded health organization. With the exception of school hygiene and milk control, essential standard public health procedures are either only partially carried out or are omitted altogether, because of insufficient funds. The health officer used his limited personnel to give the maximum results for the money expended. In the recommendations made above, some are of much greater urgency than others; notably, prompt action to increase work in prenatal, infant welfare, preschool and school hygiene, tuberculosis and communicable disease control is essential. It so happens that in every one of these urgent items the need for increased activity can be met only by increased public health nursing personnel. Therefore, with the minimum of delay at least three additional public health nurses should be placed upon the pay roll of the health department. To meet this urgent need the city should appropriate for the health department a sum of not less than \$6,000 in addition to the \$3,600 now appropriated.

These nurses should be for general duty under the direction of the health officer and assigned by him to duty in prenatal, infant welfare, preschool, or school hygiene work or tuberculosis or other communicable disease work in such manner as in his opinion would best carry out the suggestions made above.

Because of the admirable qualifications of the present health officer, his vision, technical knowledge of public health, and sound ideas of organization, advising in detail as to how the new personnel was to be used has been purposely avoided, leaving these matters of detail to the good judgment and discretion of that official.

The other suggestions relating to food control, meat inspection, etc., are less urgent and can be taken care of after a comprehensive program of child hygiene and communicable disease control is put into effect.

COURT DECISION RELATING TO PUBLIC HEALTH

Law for prevention of ophthalmia neonatorum construed.—(Michigan Supreme Court; *People v. Clobridge*, 228 N. W. 692; decided Jan. 24, 1930.) A 1913 statute provided in part as follows:

It shall be the duty of any physician, nurse, or midwife who shall assist and be in charge at the birth of any infant, or have care of the same after birth, to treat the eyes of the infant with a prophylaxis approved by the State board of health; and such treatment shall be given as soon as practicable after the birth of the infant and always within one hour.

A child was born without a physician being in attendance. The father tried to secure the services of the defendant, a practicing

physician, but the latter was busy and unable to respond. He visited the mother and child, however, eight hours after the child's birth, but did not treat the child's eyes with a prophylaxis named and approved by the State board of health. The child later became blind. The defendant was charged with having violated the above quoted statute, but the trial court quashed the information. An appeal was then taken by the State. The supreme court being equally divided on the question, the judgment of the lower court was affirmed.

The opinion affirming the judgment contained the following:

If the contention of the people is correct, the language "always within one hour," in the statute, is surplusage. These clear and express words of limitation may not be disregarded, but must be given full force and effect. The statute by providing such treatment shall be given "always within one hour" after the birth of a child indicates that, in the opinion of the legislature, subsequent treatment would be useless, if not dangerous.

The statute relied upon is a penal one, and can not be enlarged or extended by construction. [Cases cited.]

On the other hand, it must be strictly construed. [Case cited.]

"It is a cardinal rule of statutory construction that full effect shall be given to every part of the act under consideration. Every clause and every word is presumed to have some force and meaning. No portion should be rendered nugatory." [Case cited.]

* * * * *

No one may be punished under a statute for acts not clearly within the scope of its provisions.

* * * * *

The acts of defendant, instead of coming within the express language of the statute, are clearly not covered by its terms. The statute provides, in effect, for the treatment of a newborn child as soon as practicable, provided the treatment be administered "always within one hour" after the child's birth. If good practice required the treatment of the child's eyes eight hours after its birth defendant may be civilly liable for malpractice, but can not be convicted criminally.

DEATHS DURING WEEK ENDED MARCH 1, 1930

Summary of information received by telegraph from industrial insurance companies for the week ended March 1, 1930, and corresponding week of 1929. (From the Weekly Health Index March 5, 1930, issued by the Bureau of the Census, Department of Commerce)

	Week ended March 1, 1930	Corresponding week, 1929
Policies in force.....	75, 508, 041	73, 396, 493
Number of death claims.....	16, 741	19, 215
Death claims per 1,000 policies in force, annual rate..	11. 6	13. 7

Deaths from all causes in certain large cities of the United States during the week ended March 1, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index March 5, 1930, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Mar. 1, 1930		Annual death rate per 1,000 corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Mar. 1, 1930 ¹
	Total deaths	Death rate ¹		Week ended Mar. 1, 1930	Corresponding week, 1929	
Total (65 cities).....	8,397	14.7	15.7	808	958	71
Akron.....	36			3	7	27
Albany ⁴	49	21.2	17.8	5	2	109
Atlanta.....	112	22.9	19.0	9	6	95
White.....	48			2	1	63
Colored.....	64	(⁵)	(⁵)	7	5	111
Baltimore ⁴	230	14.4	17.6	23	27	78
White.....	177			18	17	77
Colored.....	53	(⁵)	(⁵)	5	10	81
Birmingham.....	84	19.7	20.4	11	16	103
White.....	37			5	3	77
Colored.....	47	(⁵)	(⁵)	6	13	142
Boston.....	245	16.0	19.4	31	36	87
Bridgeport.....	40			4	3	68
Buffalo.....	197	18.5	14.4	22	17	98
Cambridge.....	36	14.9	13.5	1	2	19
Camden.....	32	12.3	19.3	11	4	200
Canton.....	34	15.2	14.7	4	3	99
Chicago ⁴	831	13.7	14.5	78	99	69
Cincinnati.....	172			18	18	107
Cleveland.....	218	11.3	12.7	28	36	84
Columbus.....	116	20.2	17.3	7	7	68
Dallas.....	57	13.6	16.5	11	9	
White.....	48			10	8	
Colored.....	9	(⁵)	(⁵)	1	1	
Dayton.....	45	12.7	15.0	3	6	44
Denver.....	83	14.7	19.5	8	18	94
Des Moines.....	20	6.9	10.6	1	3	17
Detroit.....	352	13.3	13.5	57	45	88
Duluth.....	18	8.0	13.4	2	0	54
El Paso.....	26	11.5	14.6	5	10	
Erie.....	22			3	2	64
Fall River ⁴	33	12.8	12.0	0	6	0
Flint.....	48	16.8	9.1	13	9	152
Fort Worth.....	42	12.8	16.7	2	6	
White.....	35			1	4	
Colored.....	7	(⁵)	(⁵)	1	2	
Grand Rapids.....	42	13.3	11.7	5	4	76
Indianapolis.....	100	13.6	17.6	9	10	67
White.....	78			8	9	69
Colored.....	22	(⁵)	(⁵)	1	1	54
Jersey City.....	65	10.4	13.2	13	9	113
Kansas City, Kans.....	31	13.7	15.9	1	3	24
White.....	25			0	2	0
Colored.....	6	(⁵)	(⁵)	1	1	217
Kansas City, Mo.....	118	15.7	19.3	5	17	39
Knoxville.....	34	16.8	14.8	1	0	23
White.....	24			1	0	26
Colored.....	10	(⁵)	(⁵)	0	0	0
Los Angeles.....	291			27	26	82
Louisville.....	74	11.8	19.9	3	10	26
White.....	59			3	10	30
Colored.....	15	(⁵)	(⁵)	0	0	0
Lowell.....	40			4	5	95
Lynn.....	34	16.8	15.3	2	1	51
Memphis.....	87	23.9	25.8	8	11	95
White.....	44			6	5	110
Colored.....	43	(⁵)	(⁵)	2	6	67
Milwaukee.....	131	12.6	12.6	20	21	101
Minneapolis.....	130	14.9	11.1	9	10	58
Nashville.....	41	15.3	32.1	3	9	46
White.....	25			1	6	21
Colored.....	16	(⁵)	(⁵)	2	3	127
New Bedford.....	33			2	3	51
New Haven.....	45	12.5	12.2	4	7	78
New Orleans.....	164	19.9	18.6	15	13	87
White.....	91			10	7	88
Colored.....	73	(⁵)	(⁵)	5	6	84

See footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended March 1, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929—Continued

City	Week ended Mar. 1, 1930		Annual death rate per 1,000 corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Mar. 1, 1930
	Total deaths	Death rate		Week ended Mar. 1, 1930	Corresponding week, 1929	
New York.....	1,732	15.0	15.6	173	179	73
Bronx borough.....	238	13.0	11.1	17	20	40
Brooklyn borough.....	609	13.8	13.6	76	62	81
Manhattan borough.....	658	19.6	22.4	62	79	102
Queens borough.....	157	9.6	10.9	11	11	32
Richmond borough.....	70	24.2	20.4	7	7	130
Newark, N. J.....	138	15.2	15.6	10	16	52
Oakland.....	71	13.5	13.1	4	7	48
Oklahoma City.....	44			5	5	98
Omaha.....	72	16.9	19.2	2	13	23
Paterson.....	52	18.7	12.6	4	3	70
Philadelphia.....	551	13.9	16.5	54	53	90
Pittsburgh.....	208	16.1	17.1	16	29	59
Portland, Oreg.....	70			3	2	37
Providence.....	69	12.6	18.2	13	8	119
Richmond.....	61	16.4	16.4	5	8	74
White.....	35			2	2	45
Colored.....	26	(¹)	(¹)	3	6	131
Rochester.....	86	13.7	14.5	4	8	35
St. Louis.....	238	14.6	17.5	8	26	26
St. Paul.....	62			3	7	30
Salt Lake City ⁴	42	15.9	23.4	3	8	47
San Antonio.....	74	17.7	16.3	13	17	—
San Diego.....	37			2	0	42
San Francisco.....	201	17.9	16.7	8	13	55
Schenectady.....	17	9.5	19.0	0	4	0
Seattle.....	99	13.5	12.9	3	7	30
Somerville.....	28	14.2	12.2	3	3	98
Spokane.....	33	15.8	18.6	1	7	26
Springfield, Mass.....	43	15.0	16.7	6	4	95
Syracuse.....	62	16.2	13.6	3	6	37
Tacoma.....	21	9.9	13.7	0	1	0
Toledo.....	86	14.3	12.5	4	7	37
Trenton.....	65	24.4	24.0	9	4	168
Utica.....	33	16.5	17.5	3	2	85
Washington, D. C.....	138	13.0	17.3	7	10	41
White.....	84			4	3	35
Colored.....	54	(¹)	(¹)	3	7	53
Waterbury.....	17			1	1	26
Wilmington, Del.....	33	13.4	14.2	4	4	90
Worcester.....	66	17.4	17.4	8	9	104
Yonkers.....	32	13.8	8.6	6	5	143
Youngstown.....	42	12.6	12.0	3	5	47

¹ Annual rate per 1,000 population.

² Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.

³ Data for 73 cities.

⁴ Deaths for week ended Friday.

⁵ In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Indianapolis, 11; Kansas City, Kans, 14; Knoxville, 15; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended March 1, 1930, and March 2, 1929

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended March 1, 1930, and March 2, 1929

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Mar. 1, 1930	Week ended Mar. 2, 1929	Week ended Mar. 1, 1930	Week ended Mar. 2, 1929	Week ended Mar. 1, 1930	Week ended Mar. 2, 1929	Week ended Mar. 1, 1930	Week ended Mar. 2, 1929
New England States:								
Maine.....	4	1	7	124	13	395	1	1
New Hampshire.....	3	1		55	4	16	0	0
Vermont.....				2	1	66	0	0
Massachusetts.....	89	77	7	211	748	350	5	3
Rhode Island.....	5	8		8	1	77	0	0
Connecticut.....	23	26	10	5,053	23	381	3	2
Middle Atlantic States:								
New York.....	169	254	43	101	762	917	36	40
New Jersey.....	118	124	27	54	561	329	11	8
Pennsylvania.....	174	173			945	2,440	19	13
East North Central States:								
Ohio.....	75	102	65	187	1,291	1,664	12	8
Indiana.....	15	22		34	118	419	20	0
Illinois.....	174	176	20	256	683	963	10	9
Michigan.....	83	93	5	34	765	542	46	34
Wisconsin.....	27	15	41	256	1,202	930	5	12
West North Central States:								
Minnesota.....	15	23	3	4	271	470	2	2
Iowa.....	10	7	27		776	7	5	3
Missouri.....	56	54	12	143	44	496	18	34
North Dakota.....	4	6			37	54	5	0
South Dakota.....	3	1			104	92	1	0
Nebraska.....	14	15	4	8	653	95	8	5
Kansas.....	19	13	3	5	467	157	11	2
South Atlantic States:								
Delaware.....	1	1	2		4	39	0	0
Maryland.....	27	26	54	396	18	145	2	0
District of Columbia.....	10	11	1	10	21	11	0	0
Virginia.....								
West Virginia.....	9	14	24	72	70	167	2	3
North Carolina.....	35	42	36		15	104	6	1
South Carolina.....	22	21	1,062	1,063		10	2	0
Georgia.....	15	14	126	270	114	59	14	3
Florida.....	7	10	5	22	228	41	2	0
East South Central States:								
Kentucky.....				30	56	19	8	0
Tennessee.....	14	7	127	222	190	4	6	3
Alabama.....	13	17	212	279	191	136	3	1
Mississippi.....	11	4					24	1
West South Central States:								
Arkansas.....	10	4	89	270	15	132	5	1
Louisiana.....	19	22	21	104	144	180	7	9
Oklahoma.....	14	23	83	482	151	18	2	3
Texas.....	29	40	64	244	151	75	4	2
Mountain States:								
Montana.....				5	63	115	3	1
Idaho.....				1	23	1	4	7
Wyoming.....	4			1	16	6	1	0
Colorado.....	12	18		5	150	3	1	8
New Mexico.....	6	17	2	3	52	3	10	2
Arizona.....	9	1	5	1	7		9	17
Utah.....		2	3	15	257	1	9	26

¹ Figures for 1930 include delayed reports.

² Week ended Friday.

³ New York City only.

⁴ Figures for 1930 are exclusive of Oklahoma City and Tulsa.

*Cases of certain communicable diseases reported by telegraph by State health officers
for weeks ended March 1, 1930, and March 2, 1929—Continued*

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Mar. 1, 1930	Week ended Mar. 2, 1929	Week ended Mar. 1, 1930	Week ended Mar. 2, 1929	Week ended Mar. 1, 1930	Week ended Mar. 2, 1929	Week ended Mar. 1, 1930	Week ended Mar. 2, 1929
Pacific States:								
Washington.....	8	7	1	5	248	150	8	15
Oregon.....	6	10	81	96	48	185	1	2
California.....	57	59	45	167	1,433	40	14	22
Division and State	Polioomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Mar. 1, 1930	Week ended Mar. 2, 1929	Week ended Mar. 1, 1930	Week ended Mar. 2, 1929	Week ended Mar. 1, 1930	Week ended Mar. 2, 1929	Week ended Mar. 1, 1930	Week ended Mar. 2, 1929
New England States:								
Maine.....	0	0	75	46	0	4	4	0
New Hampshire.....	0	0	18	9	0	0	0	0
Vermont.....	0	0	7	9	2	2	0	0
Massachusetts.....	0	2	304	304	0	0	0	4
Rhode Island.....	0	0	20	19	0	0	1	0
Connecticut ¹	0	0	124	48	0	0	0	0
Middle Atlantic States:								
New York.....	2	0	678	546	7	0	21	8
New Jersey.....	0	0	258	166	0	0	2	1
Pennsylvania.....	2	1	521	514	0	0	6	11
East North Central States:								
Ohio.....	2	1	437	364	240	40	6	9
Indiana.....	0	0	213	255	201	41	2	1
Illinois.....	2	1	717	524	112	89	6	2
Michigan.....	3	0	414	343	60	44	5	2
Wisconsin.....	0	0	227	184	36	5	5	12
West North Central States:								
Minnesota.....	0	0	154	122	6	3	2	3
Iowa.....	0	0	119	188	77	15	2	0
Missouri.....	0	1	118	122	132	33	5	7
North Dakota.....	1	0	42	87	41	8	1	0
South Dakota.....	0	0	15	59	33	25	0	0
Nebraska.....	0	1	155	200	55	124	1	2
Kansas.....	1	0	150	150	71	60	2	0
South Atlantic States:								
Delaware.....	0	0	6	7	0	0	0	0
Maryland ¹	0	0	109	73	0	0	2	6
District of Columbia.....	0	0	24	23	0	0	1	1
Virginia.....	0	0	49	32	51	43	13	10
West Virginia.....	1	0	44	44	30	25	0	1
North Carolina.....	1	0	11	14	2	1	10	4
South Carolina.....	0	0	47	17	0	14	5	0
Georgia.....	0	1	9	18	2	1	6	6
Florida.....	0	0	117	72	14	5	0	1
East South Central States:								
Kentucky.....	0	0	32	41	13	0	4	7
Tennessee.....	0	1	25	20	3	26	0	3
Alabama.....	0	2	14	13	9	0	6	8
Mississippi.....	0	0	11	25	10	2	3	0
West South Central States:								
Arkansas.....	1	0	22	42	2	13	10	17
Louisiana.....	1	0	30	61	133	64	5	5
Oklahoma ¹	0	0	40	70	96	102	10	39
Texas.....	0	0	63	47	7	14	2	0
Mountain States:								
Montana.....	0	0	5	8	13	9	0	6
Idaho.....	0	0	7	4	9	2	1	0
Wyoming.....	1	1	19	66	30	45	0	3
Colorado.....	0	0	14	15	1	2	3	8
New Mexico.....	0	1	31	14	37	10	3	8
Arizona.....	0	0	14	15	4	1	0	1
Utah ¹	0	0	79	32	85	33	8	7
Pacific States:								
Washington.....	0	0	48	66	22	50	2	8
Oregon.....	2	2	264	513	68	74	3	14
California.....								

¹ Figures for 1929 include delayed reports. ² Figures for 1930 are exclusive of Oklahoma City and Tulsa.

³ Week ended Friday.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Menin- gococ- cus menin- gitis	Diph- theria	Influen- za	Ma- laria	Meas- les	Pellag- ra	Polio- mye- litis	Scarlet fever	Small- pox	Ty- phoid fever
<i>December, 1929</i>										
Massachusetts.....	12	517	33	2	681	-----	9	1,177	0	27
<i>January, 1930</i>										
California.....	60	425	346	4	2,797	3	17	1,669	614	25
Idaho.....	18	13	5	-----	448	-----	3	80	123	7
Mississippi.....	36	89	6,056	1,987	398	343	0	113	2	15
Montana.....	8	9	9	-----	99	-----	0	181	44	1
Oregon.....	2	47	271	-----	81	-----	0	212	103	5
South Dakota.....	9	10	12	-----	265	-----	1	128	257	1
Tennessee.....	74	65	818	37	467	3	4	154	54	28
Virginia.....	19	201	2,966	18	864	19	3	315	53	26
Washington.....	18	44	23	-----	551	-----	5	319	450	14
Wisconsin.....	21	108	339	-----	4,130	-----	0	722	263	14

<i>December, 1929</i>		<i>January, 1930—Continued</i>	
Massachusetts:	Cases	Jaundice (epidemic):	Cases
Anthrax.....	1	California.....	4
Chicken pox.....	1,425	Leprosy:	
Lethargic encephalitis.....	5	California.....	3
Mumps.....	562	Lethargic encephalitis:	
Septic sore throat.....	22	California.....	7
Whooping cough.....	960	Montana.....	2
<i>January, 1930</i>		Oregon.....	2
Chicken pox:		Tennessee.....	1
California.....	2,414	Washington.....	2
Idaho.....	109	Wisconsin.....	1
Mississippi.....	1,052	Mumps:	
Montana.....	65	California.....	2,586
Oregon.....	270	Idaho.....	64
South Dakota.....	144	Mississippi.....	416
Tennessee.....	152	Montana.....	515
Virginia.....	609	Oregon.....	156
Washington.....	620	South Dakota.....	35
Wisconsin.....	2,033	Tennessee.....	46
Dengue:		Washington.....	436
Mississippi.....	24	Wisconsin.....	609
Dysentery:		Ophthalmia neonatorum:	
California (amebic).....	3	California.....	4
California (bacillary).....	2	Idaho.....	1
Mississippi (amebic).....	49	Mississippi.....	9
Mississippi (bacillary).....	372	Wisconsin.....	1
Tennessee.....	4	Paratyphoid fever:	
Dysentery and diarrhea:		California.....	1
Virginia.....	112	Montana.....	2
Food poisoning:		Puerperal septicemia:	
California.....	10	Mississippi.....	28
German measles:		Rabies in animals:	
California.....	131	California.....	77
Montana.....	5	Mississippi.....	4
Washington.....	18	Rabies in man:	
Wisconsin.....	19	Tennessee.....	1
Hookworm disease:		Scabies:	
California.....	2	Oregon.....	19
Mississippi.....	281	Septic sore throat:	
Impetigo contagiosa:		Idaho.....	5
Oregon.....	12	Montana.....	1
Washington.....	7		

January, 1930—Continued

Septic sore throat—Continued.	Cases
Oregon.....	5
Tennessee.....	2
Washington.....	1
Sprue:	
Tennessee.....	1
Tetanus:	
California.....	3
Tennessee.....	2
Trachoma:	
California.....	15
Mississippi.....	4
Montana.....	2
Tennessee.....	13
Wisconsin.....	4
Trichinosis:	
California.....	65
Tularaemia:	
California.....	3
Oregon.....	1
Tennessee.....	17
Virginia.....	5

January, 1930—Continued

Undulant fever:	Cases
California.....	9
Montana.....	1
Oregon.....	2
Tennessee.....	1
Wisconsin.....	1
Vincent's angina:	
Oregon.....	4
Tennessee.....	5
Washington.....	51
Whooping cough:	
California.....	578
Idaho.....	49
Mississippi.....	920
Montana.....	13
Oregon.....	83
South Dakota.....	36
Tennessee.....	98
Virginia.....	1,075
Washington.....	174
Wisconsin.....	1,271

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 93 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 31,655,000. The estimated population of the 91 cities reporting deaths is more than 30,570,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended February 22, 1930, and February 23, 1929

	1930	1929	Estimated expectancy
<i>Cases reported</i>			
Diphtheria:			
46 States.....	1,319	1,371	
96 cities.....	565	714	946
Measles:			
43 States.....	9,541	8,655	
96 cities.....	2,779	2,724	
Meningococcus meningitis:			
47 States.....	237	194	
96 cities.....	129	120	
Polioomyelitis:			
47 States.....	17	22	
Scarlet fever:			
46 States.....	5,072	4,466	
96 cities.....	1,839	1,578	1,598
Smallpox:			
46 States.....	1,527	963	
96 cities.....	123	70	60
Typhoid fever:			
46 States.....	174	152	
96 cities.....	31	26	36
<i>Deaths reported</i>			
Influenza and pneumonia:			
91 cities.....	1,181	1,375	
Smallpox:			
91 cities.....	0	0	

City reports for week ended February 22, 1930

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during non-epidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1921 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND								
Maine:								
Portland	9	1	0	-----	0	1	20	2
New Hampshire:								
Concord	0	0	1	-----	0	2	0	4
Manchester	0	1	0	-----	0	0	0	3
Nashua	1	1	0	-----	0	0	0	0
Vermont:								
Barre	4	0	0	-----	1	6	0	0
Burlington	2	0	0	-----	0	0	0	0
Massachusetts:								
Boston	64	40	19	-----	0	111	45	55
Fall River	5	4	3	-----	0	1	0	2
Springfield	0	4	7	-----	0	1	4	3
Worcester	8	3	0	-----	0	49	0	6
Rhode Island:								
Pawtucket	3	1	5	-----	0	0	0	0
Providence	2	9	4	-----	2	1	0	9
Connecticut:								
Bridgeport	3	7	2	3	4	1	1	5
Hartford	7	6	4	-----	0	0	1	9
New Haven	54	1	0	-----	0	0	7	6
MIDDLE ATLANTIC								
New York:								
Buffalo	22	13	6	-----	0	5	2	28
New York	211	222	108	39	17	229	104	227
Rochester	13	8	3	-----	0	6	3	7
Syracuse	33	4	0	-----	0	0	95	7
New Jersey:								
Camden	2	6	6	2	0	0	0	3
Newark	41	16	17	4	1	123	13	15
Trenton	21	3	4	2	0	32	0	5
Pennsylvania:								
Philadelphia	99	72	23	15	10	69	00	82
Pittsburgh	35	21	15	-----	5	94	11	43
Reading	24	3	1	-----	0	1	2	2
Seranton	1	4	1	-----	0	1	0	0
EAST NORTH CENTRAL								
Ohio:								
Cincinnati	3	9	2	-----	0	8	2	17
Cleveland	134	31	15	20	3	4	36	20
Columbus	19	4	1	1	1	37	1	5
Toledo	42	7	2	-----	0	277	21	8
Indiana:								
Fort Wayne	1	3	4	-----	3	0	0	4
Indianapolis	20	7	3	-----	0	4	7	12
South Bend	6	2	0	-----	0	0	0	5
Terre Haute	5	1	0	-----	0	0	1	2
Illinois:								
Chicago	133	102	95	16	8	18	28	84
Springfield	29	1	0	2	0	0	2	1
Michigan:								
Detroit	74	54	40	5	9	309	51	66
Flint	11	2	0	-----	0	2	1	2
Grand Rapids	2	3	0	-----	0	2	0	6

City reports for week ended February 22, 1930—Continued

Division, State, and city	Chicken pox, cases re- ported	Diphtheria		Influenza		Measles, cases re- ported	Mumps, cases re- ported	Pneu- monia, deaths reported
		Cases es- timated expect- ancy	Cases re- ported	Cases re- ported	Deaths reported			
EAST NORTH CEN- TRAL—continued								
Wisconsin:								
Kenosha.....	7	1	0	-----	0	2	0	1
Madison.....	6	0	1	-----	-----	64	1	-----
Milwaukee.....	170	18	3	2	2	6	37	18
Racine.....	13	3	0	-----	0	1	1	1
Superior.....	0	0	0	-----	0	37	2	0
WEST NORTH CENTRAL								
Minnesota:								
Duluth.....	6	0	1	-----	0	83	0	1
Minneapolis.....	29	15	1	-----	3	52	65	8
St. Paul.....	16	10	2	-----	1	7	10	8
Iowa:								
Davenport.....	3	1	1	-----	-----	0	0	-----
Des Moines.....	2	2	0	-----	-----	80	0	-----
Sioux City.....	4	0	0	-----	-----	34	3	-----
Waterloo.....	22	0	1	-----	-----	120	2	-----
Missouri:								
Kansas City.....	40	6	6	-----	0	13	4	14
St. Joseph.....	1	1	0	-----	0	0	0	5
St. Louis.....	18	46	22	-----	-----	2	18	-----
North Dakota:								
Fargo.....	0	0	0	-----	0	0	18	1
Grand Forks.....	0	0	0	-----	-----	0	0	-----
South Dakota:								
Aberdeen.....	17	0	0	-----	-----	0	3	-----
Sioux Falls.....	0	0	0	-----	-----	9	0	-----
Nebraska:								
Omaha.....	12	4	15	-----	0	45	0	8
Kansas:								
Topeka.....	14	2	1	2	0	41	10	4
Wichita.....	13	3	0	-----	0	3	0	2
SOUTH ATLANTIC								
Delaware:								
Wilmington.....	2	2	0	-----	0	0	0	5
Maryland:								
Baltimore.....	128	27	19	21	4	6	4	43
Cumberland.....	0	1	0	-----	0	1	0	1
Frederick.....	0	0	0	-----	0	0	0	3
District of Columbia:								
Washington.....	23	18	14	1	1	15	0	18
Virginia:								
Lynchburg.....	10	0	6	-----	0	161	13	1
Norfolk.....	3	1	0	-----	0	0	0	7
Richmond.....	3	3	7	-----	3	1	3	8
Roanoke.....	1	1	3	-----	0	5	1	3
West Virginia:								
Charleston.....	18	0	0	1	0	5	0	2
Wheeling.....	8	1	1	-----	0	1	0	4
North Carolina:								
Raleigh.....	6	0	0	-----	0	0	0	2
Wilmington.....	2	0	1	-----	0	0	0	0
Winston-Salem.....	8	1	0	3	0	2	26	4
South Carolina:								
Charleston.....	2	0	3	47	0	0	2	6
Columbia.....	7	1	1	-----	0	0	3	1
Georgia:								
Atlanta.....	4	3	3	25	2	2	13	5
Brunswick.....	0	0	0	-----	0	3	6	0
Savannah.....	2	0	0	3	0	0	0	3
Florida:								
Miami.....	2	2	5	-----	0	0	2	2
St. Petersburg.....	-----	0	-----	-----	0	-----	-----	4
Tampa.....	15	2	2	-----	1	18	9	2
EAST SOUTH CENTRAL								
Kentucky:								
Covington.....	2	0	3	-----	0	0	0	4

City reports for week ended February 22, 1930—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST SOUTH CENTRAL—continued								
Tennessee:								
Memphis.....	29	3	2	-----	1	0	31	10
Nashville.....	4	1	3	-----	4	0	1	8
Alabama:								
Birmingham.....	20	2	6	5	2	7	4	10
Mobile.....	8	1	1	5	4	15	0	5
Montgomery.....	4	1	1	-----	-----	79	0	-----
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith.....	1	0	0	-----	-----	0	0	-----
Little Rock.....	3	1	1	-----	0	0	1	1
Louisiana:								
New Orleans.....	1	13	3	7	9	74	0	17
Shreveport.....	4	0	0	-----	1	0	0	7
Oklahoma:								
Oklahoma City.....	0	2	0	2	1	0	0	11
Tulsa.....	10	1	2	-----	-----	132	0	-----
Texas:								
Dallas.....	8	6	9	-----	1	140	2	8
Fort Worth.....	29	3	3	-----	4	0	1	8
Galveston.....	0	1	1	-----	0	0	0	4
Houston.....	5	5	7	-----	2	0	0	5
San Antonio.....	3	3	2	-----	6	0	0	7
MOUNTAIN								
Montana:								
Billings.....	0	1	0	-----	0	0	10	0
Great Falls.....	10	0	0	-----	0	0	21	0
Helena.....	0	0	0	-----	0	0	53	0
Missoula.....	0	0	0	-----	0	0	3	0
Idaho:								
Boise.....	0	0	0	-----	0	0	0	3
Colorado:								
Denver.....	39	11	8	-----	2	43	26	18
Pueblo.....	4	1	0	-----	0	0	23	2
New Mexico:								
Albuquerque.....	3	1	4	-----	0	5	15	5
Arizona:								
Phoenix.....	1	0	0	-----	0	1	0	7
Utah:								
Salt Lake City.....	17	2	0	-----	1	39	13	5
Nevada:								
Reno.....	0	0	0	-----	0	5	0	0
PACIFIC								
Washington:								
Seattle.....	-----	6	-----	-----	-----	-----	-----	-----
Spokane.....	-----	3	-----	-----	-----	-----	-----	-----
Tacoma.....	20	1	1	-----	0	1	1	1
Oregon:								
Portland.....	15	8	1	14	3	5	13	9
Salem.....	8	0	0	-----	-----	1	8	-----
California:								
Los Angeles.....	84	37	11	20	0	130	39	16
Sacramento.....	11	2	0	-----	0	0	29	2
San Francisco.....	67	16	6	1	1	464	77	8

City reports for week ended February 22, 1930—Continued

	Scarlet fever		Smallpox			Typhoid fever				Whoop- ing cough, cases re- ported	Deaths, all causes
Division, State, and city	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported	Tuber- culosis, deaths re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
NEW ENGLAND											
Maine:											
Portland.....	3	3	0	0	0	1	0	0	0	2	13
New Hampshire:											
Concord.....	1	1	0	0	0	1	0	0	0	0	11
Manchester....	4	0	0	0	0	2	0	0	0	0	35
Nashua.....	0	0	0	0	0	0	0	0	0	6	-----
Vermont:											
Barré.....	1	0	0	0	0	1	0	0	0	0	3
Burlington....	1	0	0	0	0	0	0	0	0	0	7
Massachusetts:											
Boston.....	85	80	0	0	0	10	1	1	0	50	260
Fall River....	4	3	0	0	0	3	0	0	0	5	44
Springfield...	9	11	0	0	0	1	1	0	0	28	48
Worcester.....	10	9	0	0	0	2	0	0	0	6	70
Rhode Islands:											
Pawtucket.....	2	2	0	0	0	0	0	0	0	4	21
Providence....	12	25	0	0	0	2	0	0	0	43	74
Connecticut:											
Bridgeport....	13	18	0	0	0	1	0	0	0	2	37
Hartford.....	6	7	0	0	0	0	1	0	0	5	41
New Haven....	10	10	0	0	0	2	1	0	0	8	56
MIDDLE ATLANTIC											
New York:											
Buffalo.....	30	21	0	0	0	10	0	0	0	22	157
New York.....	347	236	0	0	0	84	7	12	0	43	1,615
Rochester.....	10	4	0	0	0	4	1	0	0	5	89
Syracuse.....	14	36	0	0	0	0	1	0	0	25	52
New Jersey:											
Camden.....	7	4	0	0	0	2	0	0	0	0	33
Newark.....	42	39	0	0	0	8	0	0	0	17	125
Trenton.....	5	23	0	0	0	7	0	0	0	10	42
Pennsylvania:											
Philadelphia...	101	139	0	0	0	28	2	2	0	38	566
Pittsburgh....	36	27	0	0	0	12	1	0	0	34	217
Reading.....	8	5	0	0	0	3	0	0	0	22	31
Scranton.....	3	0	0	0	0	0	0	0	0	1	-----
EAST NORTH CENTRAL											
Ohio:											
Cincinnati....	22	27	1	3	0	10	0	0	0	0	170
Cleveland.....	51	69	0	2	0	11	0	0	0	88	210
Columbus.....	10	12	1	7	0	6	1	0	0	5	77
Toledo.....	13	8	1	9	0	7	0	1	0	8	86
Indiana:											
Fort Wayne....	5	1	1	2	0	0	0	0	0	1	29
Indianapolis...	13	20	10	2	0	10	0	0	0	10	-----
South Bend....	3	18	0	0	0	1	0	0	0	0	30
Terre Haute....	3	2	0	0	0	1	0	0	0	0	20
Illinois:											
Chicago.....	140	291	3	2	0	44	3	0	0	64	812
Springfield...	4	2	0	1	0	0	0	0	0	15	16
Michigan:											
Detroit.....	113	163	2	7	0	27	0	0	0	36	413
Flint.....	14	18	1	6	0	1	0	0	0	2	26
Grand Rapids..	13	13	1	0	0	0	1	0	0	7	37
Wisconsin:											
Kenosha.....	2	12	0	0	0	0	0	0	0	0	5
Madison.....	4	6	0	1	0	0	0	0	0	21	-----
Milwaukee....	40	27	0	0	0	5	0	1	0	41	133
Racine.....	5	3	0	0	0	0	0	0	0	0	21
Superior.....	4	1	0	0	0	0	0	0	0	0	

City reports for week ended February 22, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culosis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
WEST NORTH CEN- TRAL											
Minnesota:											
Duluth.....	10	3	0	1	0	2	0	1	0	8	24
Minneapolis.....	61	19	4	0	0	3	0	0	0	1	91
St. Paul.....	36	13	1	1	0	3	0	0	0	19	47
Iowa:											
Davenport.....	2	0	1	18	-----	-----	0	0	-----	0	-----
Des Moines.....	9	23	1	12	-----	-----	0	0	-----	0	35
Sioux City.....	1	6	1	1	-----	-----	0	0	-----	9	-----
Waterloo.....	3	1	0	22	-----	-----	0	0	-----	0	-----
Missouri:											
Kansas City.....	18	40	3	0	0	2	0	0	0	8	115
St. Joseph.....	3	3	0	0	0	2	0	0	0	0	32
St. Louis.....	45	36	2	11	0	15	0	0	0	6	249
North Dakota:											
Fargo.....	1	3	0	1	0	0	0	0	0	5	9
Grand Forks.....	1	6	1	1	-----	-----	0	0	-----	0	-----
South Dakota:											
Aberdeen.....	0	0	0	0	-----	-----	0	0	-----	8	-----
Sioux Falls.....	3	6	0	4	-----	-----	0	0	-----	0	10
Nebraska:											
Omaha.....	5	9	2	7	0	0	0	0	0	0	54
Kansas:											
Topeka.....	2	8	0	2	0	0	0	0	0	6	25
Wichita.....	5	28	1	2	0	2	0	0	0	2	33
SOUTH ATLANTIC											
Delaware:											
Wilmington.....	5	6	0	0	0	0	0	0	1	0	29
Maryland:											
Baltimore.....	35	44	0	0	0	12	1	0	0	25	240
Cumberland.....	1	0	0	0	0	2	0	0	0	0	12
Frederick.....	0	4	0	0	0	1	0	0	0	0	7
District of Colum- bia:											
Washington.....	28	24	0	0	0	15	1	0	0	5	165
Virginia:											
Lynchburg.....	0	2	0	0	0	0	0	0	0	9	11
Norfolk.....	3	1	0	0	0	2	0	0	0	1	-----
Richmond.....	4	8	0	1	0	4	0	0	0	0	70
Roanoke.....	1	1	0	0	0	0	0	0	0	5	13
West Virginia:											
Charleston.....	0	1	1	0	0	2	1	7	0	17	27
Wheeling.....	2	1	0	0	0	0	0	0	0	6	16
North Carolina:											
Raleigh.....	1	1	0	0	0	1	0	0	0	4	15
Wilmington.....	0	0	0	0	0	1	0	0	0	8	7
Winston-Salem.....	1	1	0	0	0	1	0	0	0	11	17
South Carolina:											
Charleston.....	0	0	0	0	0	1	1	0	0	0	30
Columbia.....	0	1	0	0	0	1	0	0	0	7	17
Georgia:											
Atlanta.....	5	22	4	0	0	4	0	0	0	0	71
Brunswick.....	0	0	0	0	0	0	0	0	0	0	4
Savannah.....	2	1	0	0	0	2	1	0	0	0	82
Florida:											
Miami.....	1	2	0	0	0	1	1	0	1	0	35
St. Petersburg.....	0	-----	0	-----	0	2	0	-----	0	-----	20
Tampa.....	1	1	0	0	0	0	1	0	0	0	83
EAST SOUTH CENTRAL											
Kentucky:											
Covington.....	2	0	0	0	0	3	0	0	0	0	25
Tennessee:											
Memphis.....	8	20	1	1	0	4	1	0	0	11	78
Nashville.....	3	2	1	1	0	3	0	0	0	9	-----
Alabama:											
Birmingham.....	2	3	4	0	0	6	1	0	0	2	67
Mobile.....	1	0	0	0	0	3	1	1	1	1	36
Montgomery.....	0	0	0	0	-----	-----	0	0	-----	2	-----

City reports for week ended February 23, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
WEST SOUTH CEN- TRAL											
Arkansas:											
Fort Smith.....	1	0	0	0			0	0		0	
Little Rock.....	2	0	0	1	0	1	0	0	0	0	
Louisiana:											
New Orleans....	8	9	0	0	0	24	2	1	0	0	162
Shreveport.....	2	2	1	3	0	0	1	0	0	3	34
Oklahoma:											
Oklahoma City...	3	23	2	20	0	1	0	0	0	0	49
Tulsa.....	2	2	1	2			1	0		6	
Texas:											
Dallas.....	4	10	4	2	0	4	1	0	0	0	73
Fort Worth.....	2	3	2	0	0	1	0	0	0	0	42
Galveston.....	0	0	0	0	0	0	1	0	0	0	17
Houston.....	2	2	3	5	0	10	0	0	0	0	87
San Antonio....	1	4	0	4	0	12	0	0	0	0	76
MOUNTAIN											
Montana:											
Billings.....	0	3	0	0	0	0	0	0	0	0	7
Great Falls.....	2	11	1	0	0	0	0	0	0	0	8
Helena.....	0	2	0	0	0	0	0	0	0	2	7
Missoula.....	0	1	0	1	0	1	0	0	0	0	3
Idaho:											
Boise.....	0	1	0	0	0	0	0	0	0	0	11
Colorado:											
Denver.....	13	12	1	0	0	8	1	0	0	0	96
Pueblo.....	2	0	0	0	0	9	0	1	0	0	14
New Mexico:											
Albuquerque....	2	0	0	0	0	7	0	0	0	0	21
Arizona:											
Phoenix.....	1	0	0	12	0	5	0	0	0	0	20
Utah:											
Salt Lake City..	8	4	1	0	0	1	0	0	0	32	42
Nevada:											
Reno.....	0	1	0	1	0	0	0	0	0	0	3
PACIFIC											
Washington:											
Seattle.....	10		3				0				
Spokane.....	7		10				0				
Tacoma.....	2	5	3	13	0	0	0	0	0	10	26
Oregon:											
Portland.....	7	1	15	20	0	0	1	1	0	8	66
Salem.....	1	0	1	0	0	0	0	0	0	0	
California:											
Los Angeles....	40	53	2	3	0	28	1	2	0	10	282
Sacramento....	2	6	0	6	0	1	0	1	0	1	30
San Francisco...	24	19	1	1	0	15	0	0	0	3	144

City reports for week ended February 22, 1930—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Maine:									
Portland.....	0	0	1	0	0	0	0	0	0
Massachusetts:									
Boston.....	2	0	0	1	0	0	0	0	0
Springfield.....	0	0	1	0	0	0	0	1	0
Worcester.....	1	0	0	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
Buffalo.....	5	0	0	0	0	0	0	0	0
New York.....	11	6	1	0	0	0	1	1	0
Syracuse.....	1	0	1	0	0	0	0	0	0
New Jersey:									
Newark.....	2	0	0	0	0	0	0	0	0
Pennsylvania:									
Philadelphia.....	6	1	0	0	0	0	1	0	0
Pittsburgh.....	0	1	0	0	0	0	0	1	1
EAST NORTH CENTRAL									
Ohio:									
Cincinnati.....	1	0	0	0	0	0	0	0	0
Cleveland.....	2	1	1	1	0	0	0	0	0
Indiana:									
Indianapolis.....	18	13	0	0	0	0	0	0	0
Illinois:									
Chicago.....	5	0	1	2	0	0	0	2	0
Michigan:									
Detroit.....	26	9	1	1	0	1	1	0	0
Flint.....	1	1	0	0	0	0	0	0	0
Grand Rapids.....	1	1	0	0	0	0	0	0	0
Wisconsin:									
Milwaukee.....	1	0	1	1	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
St. Paul.....	0	0	1	1	0	0	0	1	0
Iowa:									
Waterloo.....	2	0	0	0	0	0	0	0	0
Missouri:									
Kansas City.....	4	2	0	0	0	0	0	0	0
St. Joseph.....	1	0	0	0	0	0	0	0	0
St. Louis.....	3	1	0	0	0	0	0	0	0
Nebraska:									
Omaha.....	1	0	0	0	0	0	0	0	0
SOUTH ATLANTIC									
Delaware:									
Wilmington.....	0	0	0	0	0	0	0	1	0
Maryland:									
Baltimore.....	1	0	1	0	0	0	1	0	0
Virginia:									
Richmond.....	0	0	0	1	0	0	0	0	0
West Virginia:									
Wheeling.....	1	0	0	0	0	0	0	0	0
North Carolina:									
Raleigh.....	0	0	0	0	0	1	0	0	0
Winston-Salem.....	0	1	0	0	1	2	0	0	0
South Carolina:									
Charleston.....	0	0	0	0	2	0	0	0	0
Columbia.....	0	1	0	0	0	1	0	0	0
Georgia:									
Atlanta.....	1	0	0	0	0	0	0	0	0
Savannah.....	1	1	0	0	3	2	0	0	0
Florida:									
Tampa.....	0	0	0	0	0	1	0	0	1

City reports for week ended February 22, 1930—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
EAST SOUTH CENTRAL									
Tennessee:									
Memphis.....	8	0	0	0	0	0	0	0	0
Nashville.....	2	3	0	0	0	1	0	0	0
Alabama:									
Birmingham.....	0	0	0	0	0	1	0	0	0
WEST SOUTH CENTRAL									
Louisiana:									
New Orleans.....	2	1	0	0	0	0	0	0	0
Oklahoma:									
Tulsa.....	1	0	0	0	0	0	0	0	0
Texas:									
Dallas.....	2	1	0	0	0	0	0	0	0
Fort Worth.....	0	0	0	0	0	1	0	0	0
Houston.....	0	0	0	0	0	1	0	0	0
San Antonio.....	1	0	0	0	0	0	0	0	0
MOUNTAIN									
Colorado:									
Denver.....	1	0	0	0	0	0	0	0	0
Pueblo.....	0	1	0	0	0	0	0	0	0
Utah:									
Salt Lake City.....	2	1	0	0	0	0	0	0	0
PACIFIC									
Oregon:									
Portland.....	0	0	1	0	0	0	0	0	0
California:									
Los Angeles.....	2	0	0	0	0	0	0	0	1
Sacramento.....	3	2	0	0	1	1	0	0	0
San Francisco.....	2	0	0	0	0	0	0	0	0

The following table gives the rates per 100,000 population for 98 cities for the 6-week period ended February 22, 1930, compared with those for a like period ended February 23, 1929. The population figures used in computing the rates are approximate estimates, authoritative figures for many of the cities not being available. The 98 cities reporting cases have an estimated aggregate population of more than 32,000,000. The 91 cities reporting deaths have more than 30,500,000 estimated population.

*Summary of weekly reports from cities, January 19 to February 22, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929*¹

DIPHTHERIA CASE RATES

	Week ended—									
	Jan. 25, 1930	Jan. 26, 1929	Feb. 1, 1930	Feb. 2, 1929	Feb. 8, 1930	Feb. 9, 1929	Feb. 15, 1930	Feb. 16, 1929	Feb. 22, 1930	Feb. 23, 1929
98 cities.....	114	125	115	109	95	117	97	121	93	118
New England.....	146	200	128	103	112	117	95	130	100	117
Middle Atlantic.....	96	136	103	133	97	141	83	147	87	189
East North Central.....	145	122	140	106	103	113	115	115	102	106
West North Central.....	82	115	47	90	94	146	104	150	93	131
South Atlantic.....	106	79	106	107	70	67	93	73	110	67
East South Central.....	74	137	94	68	81	82	58	82	108	68
West South Central.....	157	114	232	95	168	114	146	114	86	175
Mountain.....	51	52	34	70	34	78	0	44	69	44
Pacific.....	92	92	68	65	43	68	87	77	55	106

MEASLES CASE RATES

	227	261	221	274	329	252	421	404	458	456
98 cities.....	227	261	221	274	329	252	421	404	458	456
New England.....	210	667	323	514	305	561	432	541	383	382
Middle Atlantic.....	117	86	160	93	186	129	224	114	267	140
East North Central.....	137	381	168	418	172	66	253	761	269	683
West North Central.....	457	627	604	770	695	1,193	793	983	759	1,253
South Atlantic.....	157	84	287	103	245	133	306	135	403	167
East South Central.....	27	27	61	7	81	14	357	41	681	0
West South Central.....	624	34	314	34	695	34	743	50	799	80
Mountain.....	377	871	462	697	479	1,341	908	1,019	747	923
Pacific.....	730	75	124	99	1,200	135	1,450	164	1,826	145

SCARLET FEVER CASE RATES

	295	230	305	232	327	246	312	277	303	261
98 cities.....	295	230	305	232	327	246	312	277	303	261
New England.....	419	317	321	303	479	305	350	373	374	292
Middle Atlantic.....	289	217	252	190	274	186	246	222	255	202
East North Central.....	379	262	420	280	432	318	438	340	425	341
West North Central.....	307	296	346	306	332	312	324	360	321	373
South Atlantic.....	176	114	205	131	203	146	231	157	216	144
East South Central.....	169	232	162	157	216	246	222	260	169	185
West South Central.....	105	99	78	145	138	232	116	255	101	270
Mountain.....	479	104	610	61	411	113	599	87	300	113
Pacific.....	402	258	367	350	338	304	314	328	255	292

SMALLPOX CASE RATES

	26	8	33	7	30	5	27	8	20	12
98 cities.....	26	8	33	7	30	5	27	8	20	12
New England.....	4	0	7	0	2	0	7	0	0	0
Middle Atlantic.....	1	0	0	0	0	0	0	0	0	0
East North Central.....	19	8	39	10	34	8	33	15	20	15
West North Central.....	70	2	53	8	69	2	47	0	91	15
South Atlantic.....	2	7	5	11	4	0	5	2	2	4
East South Central.....	0	14	13	7	0	0	39	0	13	0
West South Central.....	37	46	78	27	101	50	105	23	56	95
Mountain.....	34	61	86	78	34	26	68	70	17	35
Pacific.....	177	19	244	7	146	7	104	24	71	19

¹ The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1930 and 1929, respectively.

² Denver, Colo., not included.

³ Portland, Me., Buffalo, N. Y., St. Louis, Mo., Denver, Colo., and San Francisco, Calif., not included.

⁴ Portland, Me., Kansas City, Mo., and Denver, Colo., not included.

⁵ Birmingham, Ala., and Denver, Colo., not included.

⁶ Seattle and Spokane, Wash., not included.

⁷ Portland, Me., not included.

⁸ Buffalo, N. Y., not included.

⁹ St. Louis, Mo., not included.

¹⁰ Kansas City, Mo., not included.

¹¹ Birmingham, Ala., not included.

¹² San Francisco, Calif., not included.

Summary of weekly reports from cities, January 19 to February 22, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929—Continued

TYPHOID FEVER CASE RATES

	Week ended—									
	Jan. 25, 1930	Jan. 26, 1929	Feb. 1, 1930	Feb. 2, 1929	Feb. 8, 1930	Feb. 9, 1929	Feb. 15, 1930	Feb. 16, 1929	Feb. 22, 1930	Feb. 23, 1929
98 cities.....	14	4	15	4	14	5	15	5	15	4
New England.....	0	2	10	2	10	2	2	4	4	0
Middle Atlantic.....	5	2	15	4	3	4	6	4	7	4
East North Central.....	3	4	3	1	5	3	8	2	1	2
West North Central.....	2	4	16	6	10	2	9	12	2	6
South Atlantic.....	7	2	7	7	11	6	7	6	15	4
East South Central.....	20	7	7	0	20	7	11	14	7	7
West South Central.....	4	23	4	8	7	27	7	11	4	8
Mountain.....	17	0	17	0	10	9	10	0	9	0
Pacific.....	2	10	12	7	2	7	5	7	19	5

INFLUENZA DEATH RATES

91 cities.....	22	131	18	84	14	58	20	54	20	45
New England.....	9	204	12	141	15	90	4	56	16	49
Middle Atlantic.....	14	134	16	83	11	58	15	44	16	35
East North Central.....	17	70	13	48	13	28	18	36	16	33
West North Central.....	18	69	18	45	19	51	12	33	12	45
South Atlantic.....	31	182	11	114	11	92	29	60	20	69
East South Central.....	59	619	59	298	37	127	66	224	81	82
West South Central.....	111	199	88	168	54	102	73	162	73	133
Mountain.....	10	70	17	35	17	78	17	87	26	78
Pacific.....	18	44	15	41	9	41	21	41	3	38

PNEUMONIA DEATH RATES

91 cities.....	142	327	171	273	176	230	174	222	162	193
New England.....	126	465	181	507	151	384	177	303	221	233
Middle Atlantic.....	135	454	165	360	190	298	202	284	300	192
East North Central.....	111	184	129	170	139	133	129	183	153	170
West North Central.....	148	189	160	189	146	186	109	180	161	207
South Atlantic.....	196	388	218	268	198	240	196	243	203	238
East South Central.....	221	358	272	209	236	194	263	164	272	167
West South Central.....	310	297	314	191	291	191	276	211	188	250
Mountain.....	171	157	205	148	274	235	188	244	240	226
Pacific.....	95	123	167	118	160	129	132	123	83	129

¹ Denver, Colo., not included.

² Portland, Me., Buffalo, N. Y., St. Louis, Mo., Denver, Colo., and San Francisco, Calif., not included.

³ Portland, Me., Kansas City, Mo., and Denver, Colo., not included.

⁴ Birmingham, Ala., and Denver, Colo., not included.

⁵ Seattle and Spokane, Wash., not included.

⁶ Portland, Me., not included.

⁷ Buffalo, N. Y., not included.

⁸ St. Louis, Mo., not included.

⁹ Kansas City, Mo., not included.

¹⁰ Birmingham, Ala., not included.

¹¹ San Francisco, Calif., not included.

¹² Portland, Me., Buffalo, N. Y., Denver, Colo., and San Francisco, Calif., not included.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Week ended February 15, 1930.—The Department of Pensions and National Health reports cases of certain communicable diseases from eight Provinces of Canada as follows:

Province	Cerebro-spinal fever	Influenza	Poliomy-elitis	Small-pox	Typhoid fever
Prince Edward Island ¹					
Nova Scotia.....		15			
New Brunswick ¹					
Quebec.....			1		10
Manitoba.....	2			2	6
Saskatchewan.....				2	
Alberta.....	3		1		
British Columbia.....			1	5	1
Total	5	15	3	9	16

¹ No case of any disease included in the table was reported during the week.

Quebec Province—Communicable diseases—Week ended February 22, 1930.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended February 22, 1930, as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis.....	1	Mumps.....	177
Chicken pox.....	135	Ophthalmia neonatorum.....	1
Diphtheria.....	35	Scarlet fever.....	140
German measles.....	16	Tuberculosis.....	51
Influenza.....	11	Typhoid fever.....	34
Measles.....	228	Whooping cough.....	116

CHINA

Meningitis.—During the week ended March 5, 1930, 24 cases of meningitis were reported at Shanghai, China.

PANAMA CANAL ZONE

Communicable diseases—September, 1929.—During the month of September, 1929, certain communicable diseases, including imported cases, were reported in the Panama Canal Zone and terminal cities as follows:

	Cases	Deaths		Cases	Deaths
Chicken pox.....	9	—	Mumps.....	6	—
Diphtheria.....	40	1	Pneumonia.....	—	28
Dysentery (amebic).....	2	1	Smallpox.....	256	1
Dysentery (bacillary).....	2	—	Tuberculosis.....	—	33
Leprosy.....	1	—	Typhoid fever.....	3	—
Malaria.....	83	1	Whooping cough.....	3	—
Measles.....	16	—			

SPAIN

Vital statistics.—According to information published by the health department of Spain the number of births reported in the Kingdom during 1929 was 653,571, the number of deaths 407,421, and the number of stillbirths 21,153. The excess of births over deaths was 246,150 (253,068 in 1928), indicating that, at the present time, the population of Spain is increasing by about a quarter of a million per year.

The following table shows the birth, death, and infant mortality rates for 1929 as compared with 1928 and 1901:

	1929	1928	1901
Births per 1,000 population.....	28.92	29.67	34.85
Deaths per 1,000 population.....	18.03	18.40	27.72
Stillbirths per 1,000 births.....	31.4	30.8	23.4
Deaths under 1 year per 1,000 births.....	123.0	125.0	186.0

The following table shows the number of deaths per 100,000 population from certain causes during the years 1929, 1928, and 1901:

Deaths per 100,000 population

Cause of death	1929	1928	1901
Bronchitis, acute	80.6	75.6	139.3
Bronchitis, chronic	42.5	39.5	94.3
Cancer and other malignant tumors	70.0	70.3	42.4
Cerebral congestion, hemorrhage and softening of the brain	124.8	130.6	173.1
Cirrhosis of the liver	16.0	15.9	18.3
Congenital debility and malformations	60.1	62.3	78.0
Diarrhea and enteritis under 2 years (per 1,000 children of that age)	35.6	35.6	-----
Diphtheria	5.4	6.1	33.9
Heart disease	168.0	163.4	149.1
Hernia and intestinal obstructions	12.8	12.7	15.9
Influenza	24.3	15.4	64.1
Malaria	2.5	3.3	21.3
Measles	16.2	21.3	99.2
Meningitis (simple)	49.0	55.0	107.9
Nephritis and Bright's disease	56.9	56.7	33.3
Pneumonia	43.0	39.5	94.3
Puerperal septicemia (per 1,000 births)	20.0	22.0	32.7
Other diseases of the respiratory tract	160.0	147.2	145.1
Scarlet fever	1.0	1.4	6.1
Senility (per cent of deaths from all causes)	5.0	4.9	1.9
Smallpox ¹	-----	-----	-----
Suicide	3.5	3.9	2.1
Tuberculosis (all forms)	136.4	139.0	210.0
Typhoid fever	17.3	20.8	51.4
Whooping cough	5.1	7.7	20.0

¹ Only 3 deaths from smallpox were reported in the country during 1929, as compared with more than 5,000 at the beginning of the century and more than 1,000 half a dozen years ago.

YUGOSLAVIA

Communicable diseases—January, 1930.—During the month of January, 1930, certain communicable diseases were reported in Yugoslavia as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax	27	1	Rabies	1	1
Cerebrospinal meningitis	10	4	Scarlet fever	1,544	261
Diphtheria and croup	627	112	Tetanus	9	7
Dysentery	16	4	Typhoid fever	409	52
Measles	1,040	11	Typhus fever	26	3
Folkomyelitis	2	-----			

Place	August, 1929	Septem- ber, 1929	October, 1929	November, 1929			December, 1929			January, 1930		
				1-10	11-20	21-30	1-10	11-20	21-31	1-10	11-20	21-31
India (French):												
Chander Nagar	1	1	5	2	10	1	1					
Karikal	1		5	4	4	3	1					
Pondicherry Province		3		2	2							
Indie (Portuguese)	1	2		1								
Indo-China (see also table below):												
Paompenh	3	3	61	1	2	1	2					
Saigon and Cholon	2	2	53		2	1						
Japan			1		1	1						
Kobe	2	9	34									
Osaka	5	41										
Shimonoseki	180	26	0	2	1	4	3	2	3			
Siata	112	19	4	1	1	1	1	1				
Airibetung	10											
Ayudhya	2	2										
Bangkok	9	10	4	2	3		1	2	3	2		1
Dharmapuri	3	5	2		1			1				
Lobpur	2	3										
Nagara Rajama	2	3										
Sridharmaraj Province	5	2										
On vessel:												
S. S. Shinsei, at Shanghai	3											
S. S. Texas Maru, at Nagasaki, from Shanghai	1											
S. S. at Suva, Fiji Islands												
Indo-China (French) (see also table above):												
Annam	17	1										
Cambodia	25	38	221		2							
Cochin-China	60	45	3		43							
Laos	3	12			15							

11 cases of cholera occurred on steamship at Suva, Fiji Islands, week ended Mar. 1, 1930.

Place	Aug- ust, 1929	Sep- tem- ber, 1929	Octo- ber, 1929	No- vem- ber, 1929	De- cem- ber, 1929	Jan- uary, 1930
Tunisia:						
Sfax district.....	C	13	24	20	9	1
Tunis.....	C	10	41	9	8	3
Plague-infected rats	D	4				
Turkey: Adana.....	C	1				
Union of Socialist Soviet Republics:						
Caucasia.....	C	2				
Karakas.....	D	1				
Ural-Kirghiz.....	C				P	
Union of South Africa:						
Cape Province.....	C	17	13	4		
Orange Free State.....	C	13	5			
Transvaal.....	C	1	7	3	1	
On vessel:						
S. S. Chaban, at Port Said, from Jaffa.....	C	1				
Steamship at Porto Novo, from Lagos.....	D	1				
At Rio de Janeiro, Brazil, from Argentina.....	C	1				
British East Africa (see also table above):						
Kenya.....	C	19	28	146	157	15
Uganda.....	C	866	511	38	179	105
Ecuador: Guayaquil.....	D	740	451	351	164	94
Plague-infected rats	D	6	7	12	14	8
Greece (see also table above).....	D	1	3	4	3	6
Indo-China (see also table above).....	C	4	8	5	9	13
Madagascar (see also table above):	C	2	5	5	2	1
Ambohitra Province.....	C	1	2	2	1	10
Antistrabe Province.....	C	9	195	203	182	4
Itasy Province.....	C	46	182	193	163	182
Malunga Province.....	C	9	9	2	42	13
Marinarivo.....	C	9	9	2	33	24
Antistrabe Province.....	D	1	13	17	5	16
Itasy Province.....	D	1	13	17	5	17
Malunga Province.....	D	5	5	10	10	8
Marinarivo.....	D	2	11	12	5	3
Antistrabe Province.....	D	2	11	12	5	1
Marinarivo.....	D	11	11	11	5	1
Madagascar—Continued.						
Moramanga Province.....	C	2	5	27	4	
Tamatave Province.....	D	2	4	27	3	
Tananarive Province.....	C	36	141	141	103	
Peru.....	C	34	135	132	93	
Senegal:						
Baol i.....	C	32	42	45	23	5
Dakar i.....	C	13	24	13	16	2
Louga i.....	C	76	26	3	17	8
Rufisque i.....	C	65	17	2	5	1
Thies i.....	C	121	108	41	1	
Tivaouane i.....	C	70	64	24	1	
Thies i.....	C	53	34	3	3	3
Tivaouane i.....	C	33	23	3	3	1
Tivaouane i.....	C	188	119	41	8	
Tivaouane i.....	C	119	55	21	4	

i Incomplete reports.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX

[C indicates cases; D, deaths; P, present]

Place	Week ended—										
	December, 1929			January, 1930				February, 1930			
	July 28- Aug. 4, 1929	Aug. 5- 11, 1929	Aug. 12- 18, 1929	Sept. 19- 25, 1929	Sept. 26- Oct. 2, 1929	Oct. 3- 9, 1929	Oct. 10- 16, 1929	Nov. 17- 23, 1929	Nov. 24- Dec. 1, 1929	Dec. 2- 8, 1929	Dec. 9- 15, 1929
Algeria:											
Algiers.....	1			1	2	3					
Constantine.....									4	1	
Oran.....											1
Arabia: Aden.....	28	4	3	2	2	3		1	4	1	
	37	1				1					
Bolivia: La Paz (see table below).....											
Brazil:											
Porto Alegre.....	3	2	2	5							
Rio de Janeiro.....											
British Borneo: Sarawak.....											
British East Africa (see also table below):											
Tanganyika.....	5	9	3	41	50	50		20			2
		1		4	10	4		4			
British South Africa:											
Northern Rhodesia.....						907	54				
Southern Rhodesia.....		3	5	6	58	22	11				
						4	1				
Canada:											
Alberta.....	4	4	1	12	22	5	7	2	4	2	8
Calgary.....	2										1
Edmonton.....	1		3	12	11		7	2	4	1	
British Columbia—Vancouver.....	8	5	15	9	14	6	7	2	2	6	4
Manitoba.....				2	6	2	3	1	1	1	3
New Brunswick.....											2
Ontario.....	2		1								
Fort William.....	7	19	7	17	63	4	26	15	4	13	19
London.....											4
Niagara Falls.....				4							
North Bay.....											
Ottawa.....	1	3	7	5	2				1	1	
Sarnia.....				1	1				5	1	3
Toronto.....				1	1						1
Windsor.....		3	1	2	4			3			
Prince Edward Island.....	2			2					2		

Quebec.....	3	1	7	22	16		1	2		4	1	6		
Montreal.....											1			
Quebec.....	1	4									33	19	22	2
Saskatchewan.....	1			11	40	18	10	12	21	12				64
Regina.....							9	13	9					
Saskatoon.....	1	13	13								1			
Ceylon: Colombo.....							1							
China:														
Canton.....	2				4	1			4	4	1	2		
Chungking.....											1			
Kochow.....	P	P	P	P	P	P	P	P	P	P	1			
Hong Kong.....	5	2	3	15	62	19	38	27	20	25	19	37	18	
Manchuria.....	4	2	3	13	55	12	16	29	16	28	7	37	37	15
Harbin.....	1													
Kwantung-Dairen.....	1	2	1	1	2		1	1						
Nanking.....											1	3		
Shanghai.....	P	P					P	P	P	P				
Foreigners only.....														
Including natives.....			2	4	5	2	2	1	2	2	1	1		
Swatow.....				1	2	2	2	1	2	5	1			
Tientsin.....	2										1			
Chosen (see table below).....	2	2	3	1	4	2					1			
Colombia:														
Barranquilla.....														
Buenaventura.....	4	15	50		55	9		1	2				100	
Dutch East Indies:														
Belawan Deli.....														
Borneo-Samarinda.....	1	1		4	1	1								
Celebes-Makassar.....	7	11	8											
Java.....	4	12	155											
Batavia and West Java.....	3	5	1											
East Java and Madura.....	10	35	31	11	37	5	2	5	5		2	1		
Sangi Islands.....	6	7	6	17	8	3	2	4	1		2			
Sumatra-Medan.....	3	3												
Egypt:														
Alexandria.....	3			4	1	1								
Suez.....														
Great Britain:														
England and Wales.....	502	496	490	643	994	105	252	248	335	414	313	354	374	322
Ashton under Lyne.....	3													
Bradford.....	8	6	13	20	4		2	1	1	2	1	1	4	2
Cardiff.....	1	1	1											
Leeds.....	1	2												
London.....	78	144	156	174	321	99	83	120	166	183	137	157	156	138

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place	Week ended—													
	December, 1929				January, 1930				February, 1930					
	21	28	4	11	18	25	1	8	15	22				
London and Great Towns.....	159	180	196	274	298	309	281	263	265	X				
Newcastle-on-Tyne.....						1			1					
Stoke-on-Trent.....														
Greece: Patras.....	1	2	10		3	6		3	2					
Bombay.....		4		7	11									
Honduras: Choluteca.....				7	7									
India.....	2,723	1,747												
Bombay.....	775	542												
Calcutta.....	19	29	25	46	85	74	86	97						
Cochin.....	11	12	15	19	33	23	25	56						
Cochin.....	7	18	29	34	41	33	54	55						
Cochin.....	5	13	24	20	28	26	40	34						
Cochin.....	387	67	51	47	58	61	58	57						
Karachi.....	6	4	3	7	6	5	11	5						
Madras.....	2	3	8	4	7	6	11	4						
Madras.....	4	2	3	2	2	2	3	2						
Madras.....	27	25	10	23	16	22	34	39						
Madras.....	7	5	2	5	3	3	4	6						
Madras.....	3	1	4	1	2	15	18	29						
Madras.....	3	1				8	2	6						
Nagasaki.....														
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Place	Aug- ust, 1929	Sep- tem- ber, 1929	Octo- ber, 1929	Nov- em- ber, 1929	De- cem- ber, 1929	Jan- uary, 1930	Place	Aug- ust, 1929	Sep- tem- ber, 1929	Octo- ber, 1929	Nov- em- ber, 1929	De- cem- ber, 1929	Jan- uary, 1930
Bethlehem: La Paz	C		120	22			Morocco	10	3	14	41	64	
British East Africa (see also table above):							Persia		62	57	37	P	
Kenya	C	66		278		2				186	136		
Chosen	C	1		2			Turkey	1	41	100			
Manter Durango (see also table above)	D	1	2	2	4	12			9	25	12		

TYPHUS FEVER

[C indicates cases; D, deaths; P, present]

Place	Week ended—													
	November, 1929				December, 1929				January, 1930				February, 1930	
	23	30	7	14	21	28	4	11	18	25	1	8	15	22
Algeria:														
Algiers														
Constantine Department														
Oran														
Bolivia:														
La Paz														
Pacajes Province—Calacates Canton														
Brazil: Sao Paulo. ¹														
Bulgaria:														
Sofia														
Chile:														
Valparaiso														
China: Tientsin														

¹ Press reports show that 16 deaths from typhus fever occurred in Sao Paulo, Brazil, from Nov. 8 to 20, 1929.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER—Continued

[C indicates cases; D, deaths; P, present]

Place	Week ended—											
	November, 1929			December, 1929			January, 1930			February, 1930		
	23	30	7	14	21	28	4	11	18				25
Chosen (see table below)												
Egypt:												
Alexandria		1	2					9				
Assuan								1				
Beheira Province	31	6	16	2				7		6	8	
Cairo	4	3	4	1								
Dahleh		1										
Dahleh								4	7			
Port Said	3								2			
Suez	2	1	1							1		
Greece (see table below)												
Iraq: Baghdad Liwa												
Ireland (Irish Free State): Donegal County—Dunlunagh								1				
Latvia (see table below)								1				
Lithuania (see table below)												
Mexico:												
Aguascalientes	D	1										
Mexico City, including municipalities in Federal District	D	11	14	9	3	1	1	1	2	4	2	
Moreno	D	1	6	5	1	1	1	1	1	1	3	2
Moreno	D	6	6	5	4	1	1	1	1	1	2	1
Palestine	C	1	5	3	2	1					7	2
Persia	C	23									1	7
Persia	D	8										
Peru: Arequipa (see table below)												
Poland	C	48	26	31	62	17	16	19	22		18	15
Poland	D	7	4	3	3	3	3	3	4		2	1
Portugal: Oporto	D	1		1	3	2	1	1			5	6
Portugal: Oporto	D										7	8
Portugal: Oporto	D											1

Rumania.....	C	9	39	25	19	8	11	32	52	14	68						
Tunisia.....	D	1	4	5	2	1		1	9	1	4						
Turkey (see table below).	C	4		1	1		1		1		2						
Union of South Africa:																	
Cape Province.....	C	1	P	P	P		P	P		P							
Natal.....	C	P	P	2	P		P			P							
Orange Free State.....	C	P	P	P	P		P	P		P							
Transvaal.....	C	P	P	P	P					P							
Yugoslavia (see table below).																	

Place	August, 1929	Sep- tember, 1929	Octo- ber, 1929	Novem- ber, 1929	Decem- ber, 1929	January, 1930	Place	August, 1929	Sep- tember, 1929	Octo- ber, 1929	Novem- ber, 1929	Decem- ber, 1929	January, 1930
Chosen: Seoul.....		1			1		Peru: Arequipa.....		1	1			
Czechoslovakia.....		1		3	1		Turkey.....	3	4	10	2	4	2
France.....		1					Yugoslavia.....	7	1	1		6	26
Greece: Athens.....	6	3	7		2	1		2				1	3
Latvia.....	1	3	6	4	5	2							
Lithuania.....	7		1	1	1								
D.....	1												

YELLOW FEVER

During the month of September, 1929, cases of yellow fever were reported as follows: Netheroy, Brazil, 1 case; Rio de Janeiro, Brazil, 2 cases; Monrovia, Liberia, 1 case.

X

UNITED STATES TREASURY DEPARTMENT

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===== SPECIAL ARTICLES =====

Report of a Public Health Survey of Fort Smith, Ark.
Meeting of the Permanent Committee of the International
Office of Public Hygiene



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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. R. C. WILLIAMS, *Chief of Division*

THE PUBLIC HEALTH REPORTS are issued weekly by the United States Public Health Service through its Division of Sanitary Reports and Statistics, pursuant to acts of Congress approved February 15, 1893, and August 14, 1912.

They contain: (1) Current information of the prevalence and geographic distribution of preventable diseases in the United States in so far as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other communicable diseases throughout the world. (2) Articles relating to the cause, prevention, or control of disease. (3) Other pertinent information regarding sanitation and the conservation of public health.

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PUBLIC HEALTH REPORTS

VOL. 45

MARCH 21, 1930

NO. 12

PUBLIC HEALTH SURVEY OF FORT SMITH, ARK.

By ALLAN J. McLAUGHLIN, *Surgeon, United States Public Health Service*

Fort Smith, the second largest city in Arkansas, is situated at the junction of the Arkansas and Poteau Rivers on the Arkansas-Oklahoma State line. It has a mild winter climate, and the mean annual temperature is about 61°. The average rainfall is about 41 inches. It is a natural trade center for a large area. Its commercial importance is indicated by the presence of 88 wholesale and jobbing establishments, and over 600 traveling salesmen living in Fort Smith sell its products over the large tributary area. It has a quite diversified industrial activity. There are 120 industrial plants representing over 200 products, the principal of which are furniture, glass, mirrors, scissors, wheelbarrows, and auto bodies, and there are also zinc and lead smelters.

FINANCIAL

The total assessed value of real and personal property is \$22,-767,209.80. This is variously estimated as being from 30 to 40 per cent of the actual value. The tax rate per \$1,000 last year was \$40.68.

The total municipal receipts for 1929 were \$408,454.80, the principal items of which were—

City general 5 mill tax from county	\$111, 531. 33
Privilege tax.....	37, 292. 38
Automobile licenses.....	31, 778. 00
Water department receipts.....	156, 297. 94
Miscellaneous.....	71, 555. 15
Total receipts	408, 454. 80

The special 18 mill school tax amounted to \$431,749.95; the principal items of expenditures were as follows:

Police.....	\$50, 095. 68	Water department.....	\$133, 617. 25
Fire.....	82, 142. 28	All other departments....	56, 519. 02
Health.....	14, 498. 85		
Lighting.....	12, 233. 69	Total expenditures..	385, 626. 77
Streets.....	36, 500. 00		

HOUSING

There is no housing problem in Fort Smith. The price of land is reasonable and houses are usually detached. There are no tenement or slum districts.

WATER SUPPLY

The present source of water supply is the Poteau River, in Oklahoma, about 400 feet from the State line. At the water plant there is a sedimentation basin, capacity 5,000,000 gallons. There are eight rapid sand mechanical filter units of 1,000,000 gallons capacity each. Alum and lime are used as coagulants. There is a clear well with a capacity of 500,000 gallons and provision is made for treating the clear effluent with chlorine. For distribution the water is pumped to two reservoirs. The first, the Bayley Hill Reservoir, with a capacity of 11,000,000 gallons, supplies the lower level. The second, Crowe Hill Reservoir, with a capacity of 3,000,000 gallons, is a high-service reservoir supplying the higher part of the city, the residence district. The water is checked daily and is a safe water. The plant is menaced by flood conditions of the Arkansas River, which is gradually washing away the intervening ground. In a few years a new plant and a new source will be necessary. There are 8,400 services, 90 per cent of which are metered.

SEWERAGE AND SEWAGE DISPOSAL

The city of Fort Smith has a rather complex sewerage system. There are storm water, sanitary, and combined units. There are six outfalls into the Arkansas River from north to south, as follows:

1. Combined sewer, 11 feet 9 inches in diameter.
2. Egg-shaped sanitary, vertical diameter 3 feet, horizontal diameter 2 feet.
3. Storm water, Garrison Avenue, 2 feet in diameter.
4. Cornell Avenue storm water, 5 feet in diameter.
5. Storm water, 5 feet in diameter.
6. Storm water, Johnson and 10th, 4 feet in diameter.

There is also a sanitary 12-inch sewer, no outfall, pumped from a sump to No. 1 combined sewer.

The sewers function well, though there has been trouble in time of flood. In the sewered districts, 8,300 homes have sewer connection and only 140 are unconnected. In the outlying districts there are about 1,000 homes, about 500 of which have approved septic tanks and 500 have unapproved privies.

GARBAGE AND REFUSE

Fort Smith, under an ordinance passed in 1925, has a simple but effective system of collection and disposal of garbage. Garbage and refuse are combined. Collection in the business, or fire, district is made daily; in the residence district, weekly. The collection in residence districts is free, while in the business section fees are charged ranging from 50 cents to \$6 per month according to the type, size, and purpose of the building. The daily collection in the business district is made by two dump-body trucks. In the residence district 11 wagons are used. After wagons have been loaded, the horses are unhitched and two or three wagons are linked together and drawn by a truck to the incinerator. No salvage is attempted, and refuse is burned in the incinerator, the refuse serving as fuel to dry and consume the garbage.

CITY ORGANIZATION

There is a commission form of government, consisting of the mayor and two commissioners. The mayor has charge of the department of public affairs, which includes the mayor's department, the legal department, and the police department.

One commissioner (A) has charge of the department of accounts and finance and the department of health and public safety (health, fire, garbage, building, plumbing, and sanitary).

The other commissioner (B) has charge of the department of public works and public property—the engineering department (sewers, streets, lights, cemetery, parks, and water supply).

The joint health organization has a board of health, made up of commissioner (A), the county judge, and a third member selected by these two who must be a Fort Smith practicing physician.

ORGANIZATION OF HEALTH DEPARTMENT

There is an unique situation in Sebastian County in that it has really two county seats—the Greenwood district with Greenwood as a center and the Fort Smith district with a section of the county and the city of Fort Smith. All taxes are collected by the county and such amounts are paid back to the city as is required by law (5 mills general city tax). Joint expenditures are made on the basis of one-third by county and two-thirds by the city of Fort Smith.

Fort Smith and its outlying districts make up a population of about 40,000; the remainder of the population in the section of the county included in the Fort Smith district is small.

Regardless of the joint county and city health organization, for all survey purposes we may consider the Fort Smith district as an expanded city of Fort Smith, with a population of 40,000. The joint city and county organization is responsible for two nurses who went

on duty January 1, 1930, one in the Greenwood district and one in the Fort Smith district. Fort Smith city has, with this nurse, the following personnel in the health department:

Title	Salary	Time employed
1 health officer	\$1,000	Full time.
1 deputy health officer	1,200	Part time.
1 veterinarian	1,980	Full time.
1 milk inspector	2,400	Do.
1 food inspector	1,740	Do.
1 sanitary inspector	1,740	Do.
1 chemist and bacteriologist	2,220	Do.
1 clerk	900	Do.

In addition to this personnel and the nurse recently assigned to Fort Smith by the joint board, and a school nurse employed by the board of education, the only unofficial agency doing health work in Fort Smith is the Metropolitan Life Insurance Co., which employs one nurse.

HOSPITALS

There are two good hospitals in Fort Smith. St. Edwards Mercy Hospital, operated by the Sisters of Mercy, is an excellent institution, partly new, and the remainder renovated in modern fashion. It is self-supporting, has 108 beds, 56 private rooms, 5 two-bed rooms, and 42 ward beds, with rates from \$3 to \$5 per day. It has 15 maternity beds, with 135 deliveries last year—126 live babies and 9 stillbirths. It had 685 surgical and 665 medical cases. It is open to members of the local medical society. It has a training school, with 40 pupil nurses, giving a 3-year course and with entrance requirements of graduation from a high school. It has no out-patient department, but has space with separate entrance which could be used for such a purpose. The Sparks Memorial Hospital has 100 beds—75 for white and 25 for negro patients. There are 10 maternity beds and there were 67 deliveries last year. The hospital is self-supporting, with a low rate of \$2 for its negro beds and a rate of \$3 to \$5 for whites. It has a training school with 34 pupil nurses, a 2½-year course, and requirements of high-school graduation. It is open to the local medical society. It has no out-patient department. Both these hospitals were very receptive of the idea of establishing out-patient departments, provided the medical society could arrange such facilities without financial loss to the hospital. Both hospitals have good operating rooms, X-ray and laboratory units, and both are approved by the American College of Surgeons.

Hospital bed accommodation in Fort Smith must be considered adequate. Two hundred beds furnish the accepted requirements of 5 beds per 1,000 population. A second criterion for judging adequacy is percentage of occupancy. One of these hospitals, with

capacity for 36,000 hospital days, actually furnished 15,000 hospital days' service, or a percentage of occupancy of less than 50 per cent. The greatest lack is in out-patient service. A hospital to-day without an out-patient department is seriously limiting its service to the public. It gives early diagnosis and treatment and prevents many cases from becoming hospital bed cases. It should furnish diagnostic clinic service to cases sent in by physicians. These cases should then be referred back to their physicians.

VITAL STATISTICS

The city clerk is registrar of vital statistics. It would be more convenient if these records were in the health department. Still, the city clerk's office is only three blocks away and a register is kept there which could be consulted daily by the health officer. The original certificates are sent to the State board of health, and the only check on their accuracy or completeness is the little that can be done by the competent but inadequate personnel of the State. There is no prompt utilization locally of these records of births and deaths. To improve reporting, rates are computed by the State health department and sent back after a year. There is an annual tabulation of deaths by cause, by color, and by age under 1 year by the State department. The enormous fluctuation in infant mortality rates in 5 years, for instance, 107 in 1924 to 44 in 1928, does not indicate reduction in the rate but probably better reporting.

COMMUNICABLE DISEASE CONTROL

Reporting.—One need only check the cases reported against the deaths reported of any of the common communicable diseases to understand how poorly these diseases are reported.

Reporting of communicable diseases—Ratio of cases to deaths

Disease	Average for 3 years		Ratio of cases to deaths	Standard ratio
	Deaths	Cases		
Diphtheria.....	5	47	9	15
Typhoid.....	13	35	3	10
Scarlet fever.....	1	30	30	50
Measles.....	5	410	82	60

Measles is the only one of these diseases adequately reported.

An epidemiologic card is made out for typhoid fever only. Spot maps are not kept. Chronological charts showing prevalence by weeks are not kept.

Diphtheria control.—Cultures of contacts evidently are not made, as only 76 diphtheria examinations were made in laboratory. Diphtheria cases are released only after two negative cultures.

Typhoid fever control.—There is one visit to a typhoid fever case for epidemiologic record. Cases are not quarantined and no cultures are taken for release.

Smallpox.—One hundred and sixty-five vaccinations for smallpox were made, and contacts are said to be vaccinated. All school children are vaccinated in the first grade.

Visits to cases.—An average of one visit to each case is made, and the health officer renders final opinion in doubtful cases.

Hospitalization.—There is no hospital for contagious diseases in Fort Smith.

Immunization.—There is no record of toxin-antitoxin injections nor of the use of the Schick test. First-grade school children are vaccinated. The health officer gave 376 typhoid vaccine injections to charity patients.

Venereal disease control.—There is no system of venereal disease control in effect. Those diseases are not reported except from clinics. Practically all cases reported (an annual average of 75 cases) discontinue treatment without permission and vanish from clinics uncured. There is no follow-up and no effort made to discover sources of infection and other cases.

Tuberculosis control.—Case finding: There is no effort made to find cases. An average of 53 deaths were reported in the past three years. No new cases were reported and no visits were made. There is no register of tuberculosis cases kept. There is no tuberculosis clinic; but if a case is found among the sick poor who come to the health department, the patient is sent to the county hospital (20 beds) or to the State sanatorium.

MATERNITY HYGIENE

There is no plan for nor work done in maternity hygiene by the health department. There are two excellent hospitals (St. Edwards and Sparks) which have standard obstetrical facilities, and in these there were 200 deliveries made under favorable conditions during the year. About 160 of the mothers were residents of Fort Smith. There is a relatively small number of midwives, mostly colored, operating in the district. Formerly, when the health department had a public-health nurse, there was registration and instruction of midwives, but nothing of that nature is being done now. There are no prenatal clinics and no prenatal visiting. No women are registered three or more months before confinement except with private physicians. The Metropolitan Insurance Co. nurse, in her routine of visiting, makes some visits to pregnant women, but this is casual and can not be called prenatal work.

INFANT HYGIENE

There are no baby welfare clinics, either official or unofficial. There are no public health nurses in the health department (January, 1930) for follow up or visiting the new-born babies or babies under one year.

The Metropolitan nurse, in the course of her work, sees and gives advice concerning new-born babies, but it is incidental and not according to plan.

PRESCHOOL HYGIENE

There is no preschool hygiene work being done, because of lack of the other activities in public health nursing which furnish access to the preschool child.

SCHOOL HYGIENE

There is an enrollment of 7,881 pupils in all the schools of Fort Smith. There is one very well trained and efficient public health nurse employed by the school board. The following report of her work shows a remarkable total and a very intelligent distribution of her time:

Year 1928-29 (September, 1928, to May, 1929, inclusive)

Number of school visits.....	371
Number of days assisting physicians in schools.....	6½
Number of individual inspections.....	8, 597
Number of vaccinations.....	235
Number of health talks.....	5
Number of children weighed.....	19, 846
Number of hearing tests made.....	2, 384
Number of vision tests made.....	4, 183
Number of cases given first aid.....	5
Number of children taken to clinics.....	171
Number of consultations at schools.....	6
Number of home visits.....	548
Number of other calls.....	46
Number of children excluded from school.....	70
Number of skin diseases found:	
Scabies.....	30
Pediculosis.....	9
Ring worm.....	2
Others.....	8
Total.....	49

Through the cooperation of local dentists it has been possible for 156 children from indigent homes to have dental care, a very worthwhile piece of work, since defective teeth are a serious handicap to the health of children.

The nurse pays the physicians the following tribute:

Doctors, too, deserve much credit for their splendid efforts. They have responded to every call. Almost every parent-teacher organization sponsored a summer round-up program and each of them called upon doctors for assistance. Frequently children from schools were taken to doctors for examinations and treatments. Several doctors gave their time to removing the tonsils of 26 charity cases. The hospitals made no charges for these cases. Eye operations were performed on two children, one of them being almost entirely blind since birth. After several operations the eyesight is very much improved, and the doctors think she may be able to attend school next fall. Had it not been for this work she would have been sent to the blind school.

Nurse's report from September, 1929, to January, 1930

Number of visits to schools.....	155
Number of days assisting physicians in schools.....	3
Number of individual inspections.....	4, 196
Number of vaccinations	31
Number of health talks.....	1
Number of children weighed.....	8, 454
Number of vision tests.....	3, 435
Number of hearing tests.....	3, 435
Number of children given first aid.....	2
Number of children taken to clinics.....	46
Number of miscellaneous cases.....	4
Number of home visits.....	156
Number of other calls.....	25
Number of sick children excluded from school.....	3
Number of skin diseases:	
Scabies.....	2
Pediculosis.....	2
Total.....	4

An average of 30 minutes a day is spent in health instruction in all of the elementary schools. The high school spends 20 minutes a day in physical education.

List of defects found by nurse's inspection

WHITE SCHOOLS, 1928-29

Number of children inspected.....	3, 680
Number of children having defects.....	3, 145

Defect	Number found	Number corrected	Defect	Number found	Number corrected
Vision.....	131	40	Dirty teeth.....	520	283
Hearing.....	88	(¹)	Other.....	552	153
Tonsils.....	1, 492	179	Total.....	14, 607	1, 904
Teeth.....	4, 992	1, 349			

WHITE SCHOOLS, 1929-1930

Defects	Number	Defects	Number
Vision.....	119	Dirty teeth.....	52
Hearing.....	61	Other.....	72
Tonsils.....	1, 426	Total.....	6, 521
Teeth.....	4, 801		

¹ No report.

Number of children whose tonsils have been removed

White.....	697
Colored.....	4
Total.....	701

List of defects found by physicians' examinations in colored schools

Number of children examined..... 462

Defect	Number found	Defect	Number found
Teeth.....	178	Speech.....	1
Eyes.....	23	Spine.....	4
Ears.....	24	Nose.....	4
Tonsils.....	125	Mental nerve.....	1
Adenoids.....	100	Skin.....	2
Heart.....	16	Total.....	494
Glands.....	17		

Underweight children

WHITE

Date	Per cent of underweight children		Per cent of children 10 per cent underweight	
	Boys	Girls	Boys	Girls
September, 1928.....	79.5	77.2	32.8	34.5
May, 1929.....	68.9	70.6	21.8	24.5
September, 1929.....	68.3	70.5	26.6	30.8

COLORED

September, 1928.....	71.2	60.5	22.5	22.2
May, 1929.....	35.7	57.4	13.0	19.1
September, 1929.....	78.0	60.0	24.7	30.7

The colored schools were furnished milk during the two preceding years but were not furnished it during 1929.

Number of children entering school in September, 1929..... 550

Number of these children examined by doctors in May, 1928..... 300

Number of these children examined by doctors in September, 1929..... 405

These examinations were sponsored by the parent-teachers associations, and reports were sent to the State association, and only one school kept a duplicate copy.

DuVal School

Number of children examined.....	48
Number of children having defects.....	42
Number of 100 per cent children.....	6

Defect	Number	Correc-tions	Defect	Number	Correc-tions
Hernia.....	2		Eyes.....	1	1
Glands.....	5	1	Ears.....	6	3
Heart.....	1	1	Circumcision required.....		1
Adenoids.....	4	4	Underweight.....	15	14
Tonsils.....	15	7	Total.....	63	36
Teeth.....	14	4			

Free medical examinations by the local physicians and the work done by the school nurse are the bright spots in public health work in Fort Smith. The nurse, with over 7,000 pupils, is carrying an overload and needs help, but she has covered a surprisingly large part of her field. Absentees are very intelligently handled. An attendance director visits the home and if the absence is due to illness, the school nurse is notified.

FOOD AND MILK CONTROL

There is no instruction of food handlers except by the food inspector and the health officer in his examinations of food handlers. All food handlers are examined every 90 days. The examination is superficial and no laboratory tests are made unless obvious clinical signs are present. There is an active inspection of food establishments by a full-time food inspector. A summary of his report follows:

Inspections, 1929

Restaurants and cafés.....	814	Bakeries.....	62
Fruit stands.....	75	Packing and meat houses.....	6
Grocery stores and meat markets.....	956	Bottling works.....	12
School cafeterias.....	43	Tourist camps.....	18
Fountains (soda).....	216	Orders to improve sanitation.....	93
Rooming houses.....	161	Rechecks.....	381
Barber shops.....	214		

MEAT INSPECTION

There is a municipal abattoir where all animals must be slaughtered under direct supervision of a graduate veterinarian. The personnel paid by the city consists of one veterinarian at \$165 per month, and one laborer at \$50 per month. Other labor for slaughtering and preparing meat for market is furnished by the butchers. The fees are, each—

	Cents		Cents
Beef cattle.....	65	Hogs.....	35
Calves.....	30	Sheep and goats.....	30

Financial statement regarding abattoir

Receipts from fees (city two-thirds), 1929.....	\$3, 088. 81.
Expenses (city two-thirds), 1929.....	3, 019. 11

This statement does not include original cost of construction, interest, or depreciation.

MILK INSPECTION

There is a full-time milk inspector operating under a model ordinance. The following table shows the work done. About one-half the supply is pasteurized.

Work of dairy inspector for year 1929

Number of visits to dairies.....	915
Number of pasteurizing plants inspected.....	48
Number of dairies scored.....	308
Milk inspections on delivery trucks.....	816
Number cows tuberculin tested.....	2, 581
Dairies condemned.....	2
Cows condemned for tuberculosis.....	2
Milk samples collected for analyses.....	816
Cream samples collected for analyses.....	31

SANITATION

A full-time nuisance inspector is employed on nuisances. A summary of his report follows:

Inspections made:

Insanitary yards.....	25
Insanitary water holes.....	37
Insanitary alleys.....	481
Insanitary vacant property.....	55
Insanitary chicken lots.....	49
Insanitary cow lots.....	46
Insanitary buildings.....	33
Insanitary hog pens.....	17
Insanitary basements.....	3

Orders:

Orders to have weeds and grass cut.....	564
Orders to get garbage cans.....	308
Orders to get garbage-can lids.....	58
Orders to keep garbage cans covered.....	97

LABORATORY

There is a well-equipped laboratory, and the city chemist, who is also a bacteriologist, is in charge. He made 1,795 laboratory examinations in 1929. Almost 50 per cent were for milk. The next largest item is an almost daily check of the city water supply. The city chemist did 205 Wassermann reactions. Some readjustment of his time could be made to permit more work in diphtheria, typhoid, and tuberculosis examinations.

Laboratory work for year 1929

	Number
Diphtheria.....	76
Gonococci smears.....	32
Malaria examinations.....	11
Rabies.....	9
Sputum for tuberculosis.....	29
Wassermann reactions.....	205
Urine analyses.....	167
Milk analyses.....	816
Cream analyses.....	31

	Number
Alcoholic beverage analyses.....	49
City water analyses.....	292
Well water analyses.....	22
Meningitis tests.....	2
Human milk examinations.....	1
Country butter analyses.....	2
Widal examinations.....	16
Trench mouth analyses.....	1
Diazo analyses.....	18
Vincent's angina analyses.....	11
Gasoline analyses.....	4
Examinations for dope.....	2
Throat examinations.....	1
Streptococcus examinations.....	1
Spirilla analyses.....	1
Boiler compound analyses.....	1
Spring water analyses.....	1
Examinations of water from coolers.....	3

SUMMARY OF HEALTH WORK DONE IN FORT SMITH

There are 12 major divisions of public health work which should, together, constitute a well-rounded program for a health department. There are three other activities which are found only in highly developed organizations and in cities larger than Fort Smith. For this reason cancer control, heart disease control, and mental hygiene are omitted, and their absence from the program will not be considered a defect in Fort Smith's organization. The 12 major activities, which should exist and be developed in any well-rounded health department program are the following:

1. Vital statistics.
2. Communicable disease control.
3. Venereal disease control.
4. Tuberculosis control.
5. Maternity hygiene.
6. Infant hygiene.
7. Preschool hygiene.
8. School hygiene.
9. Food and milk control.
10. Sanitation.
11. Laboratory.
12. Popular health instruction.

Of these 12 major activities, Fort Smith is executing 4 in a manner which can be classed as average or better. These activities are as follows:

1. *School hygiene.*—This work is done largely by a nurse employed by the board of education with assistance from local physicians and dentists. She has the hearty cooperation of the school authorities and teachers. The work can be classed as excellent.

2. *Food and milk control.*—This includes examination of food handlers by the health officer and the work of two full-time inspectors, one for food and one for milk. It also includes the meat inspection and slaughtering in the municipal abattoir under supervision of a veterinarian. This work is classed as good.

3. *Sanitation.*—This includes water supply, sewage disposal, abatement of nuisances, and collection of garbage and refuse. This work is classed as good.

4. *Laboratory.*—This activity by the readjustment of the work, with greater accent on communicable diseases, and with the present man in charge, could easily be classed excellent. The work as now done is classed as good.

With the exception of school hygiene, carried on by a public health nurse employed by another department of city government, these activities are all in the category of things done for the people by the municipal government under its police powers. We expect cities to provide a safe water supply, sewage disposal, food and milk regulation, abatement of nuisances and collection of garbage and refuse, as a matter of law and ordinance enforced by police power. These things should run automatically without taking any time of the health officer. So that even in the things classed above as being done and rather well done, they are done without using up any considerable part of the time of the health officer.

The other eight activities, which are of far greater importance in terms of lives saved and disease prevented, have received very little attention from the health officer, and have taken very little of his time.

1. *Vital statistics.*—Vital statistics are collected by the State board of health. The registrar is the city clerk. No utilization of these statistics is made currently, daily, or weekly for checking their accuracy, for checking reporting of cases, or for making spot maps and chronological charts of the progress of diseases by weeks.

2. *Communicable disease control.*—With the exception of typhoid fever no epidemiologic cards are kept for these diseases. An average of one visit is made instead of an average of at least four visits. Diphtheria patients are released from quarantine only after two negative cultures, but control of other diseases is not in evidence. Immunization against smallpox is required in the schools. There is no record of immunizations done for diphtheria nor of the use of the Schick test.

3. *Venereal disease control.*—There is no systematic effort to find and treat sources of disease, no check on incomplete reporting, and no follow-up work.

4. *Tuberculosis.*—Patients who present themselves for sick relief or who call for such relief in their homes would presumably be cared for, but there is no reporting of tuberculosis; no register is kept, there

is no visiting of cases, and no effort is being made to find incipient cases.

5. *Maternity hygiene*.—There is no program for maternity hygiene, and no prenatal work is being done. Midwives are not registered, and there is no instruction of midwives in regular classes.

6. *Infant hygiene*.—There is no well baby clinic, and no visiting of the new born or other babies under one year.

7. *Preschool hygiene*.—With no visiting nurses operating, the most promising approach to preschool children is cut off. Therefore no preschool hygiene is done.

8. *Popular health instruction*.—No systematic plan for popular health instruction exists and practically nothing is done.

With the above summary of work done and of work not done, two questions naturally arise: (1) Why are the most promising activities in public health work neglected? (2) If the work done is under municipal law and ordinance, more or less automatic, requiring (with the exception of examination of food handlers) no time of the health officer or his assistant, how do these officials occupy their time? I shall answer these two questions as follows, taking up the second question first:

(2) The time of the health officer and of his full-time assistant is taken up as follows:

Charity sick calls.....	3, 449
Hospital calls, sick poor.....	1, 800
Jail calls to sick inmates.....	878
Confinement cases.....	30
Office examinations.....	3, 966
Prescriptions given.....	2, 384
Office treatments given.....	1, 096
Visits contagious diseases.....	268

If we exclude the 268 contagious disease visits and the office examinations of food handlers, the entire time of the health officer and his part-time assistant is devoted to what is nothing more than a system of sick poor relief. This is the reason that the health officer has no time for the development of public health activity on modern lines in communicable disease control, tuberculosis, maternal, infant, and child hygiene.

The health officer, Doctor Johnson, receives \$4,000 salary for full-time service, and his assistant, Doctor Redmont, \$1,200 per annum for part-time service. Under these conditions Doctor Johnson's title is a misnomer, he is really city physician for sick poor relief. In justice to Doctor Johnson it must be said that he inherited the present policy of sick poor relief which had been started many years ago and has grown to abnormal proportions. He has been unable to change this policy of considering sick poor relief as the major factor

in the health officers' work. Public demand based on old custom has kept Doctor Johnson so busy with what is not really health work that he has had little chance to do constructive work in building a health department on modern lines.

The table already given will show the great volume of work in sick poor relief. It is incredible that any such numbers of sick poor should demand treatment in a city the size of Fort Smith. The system has been popular, it has not been discouraged, and there is no systematic check on whether the beneficiaries are really indigent.

(1) These fields are neglected, first, because the health officers' time, with the exceptions noted, and the entire time of his part-time assistant are absorbed by the work of sick-poor relief. Then, too, the development of these essential public health activities depends upon the work of public health nurses and there are no nurses on the pay roll of the city health department.

REMEDIES

Having stated the major defects, concentration upon an activity which is not public health, viz, sick poor relief, lack of a constructive plan in modern public health development, and lack of the public health nursing personnel to carry out such a plan, it is pertinent to consider remedies for the correction of these defects. First of all provision must be made for the removal of sick poor relief from the health department. This is the crux of the situation. If the health officer can be relieved of this burden, his time will be released for planning and executing a comprehensive plan for what does not now exist, viz, adequate control of communicable disease, tuberculosis, maternal and infant mortality, and child hygiene. Public health nurses can then be employed to carry out such a plan. The most logical procedure is (1) to find some means of reducing the volume of this sick poor relief to beneficiaries who are really indigent and who are bona fide residents of Fort Smith; (2) to find or create some agency which will absorb this work and care for the sick poor.

In regard to the method and machinery by which this sick poor relief should be reduced and limited strictly to indigent citizens of Fort Smith, it is not felt that it is within the province of the writer to give an opinion; it is a matter for the municipal government of Fort Smith and, perhaps, the community chest to determine. It is not a public health matter and I only mention it because it has a bearing on the ease with which some other agency can take over this burden of sick poor relief from the health department.

In regard to the agency or means by which the health department can be relieved of sick poor relief, I have definite recommendations to make.

The Sebastian County Medical Society.—The medical society holds the solution of the problem in its hands. It is an unusually progressive and public spirited body, in which a spirit of harmony is evident, which also is none too common. I had the privilege of addressing their annual meeting on January 14, 1930, and stressed the collective obligation of medical societies to solve one of our greatest sociologic problems, viz, How can every citizen secure the best medical, surgical, and preventive advice and treatment at a price within his ability to pay? Reference was then made to the local problem and it was suggested that they find means of taking this burden of sick relief off the shoulders of the health department, and that the most logical plan would be to develop out-patient departments in two of the local hospitals. As noted in this report, there are two exceptionally well equipped hospitals in Fort Smith—the St. Edwards and the Sparks Memorial. The executive direction of both hospitals is receptive to such a development. The space with a separate outside entrance is already available in one of them.

The president of the medical society, Doctor Buckley, promptly called another special meeting for further explanation and development of the plan. As a result, a resolution was passed and a committee was appointed to secure promptly all information and to report back to the society.

It is believed that a well-conducted out-patient department could absorb a great part of the present sick relief burden. Some of the patients now treated could pay a small fee, and the really indigent cases could be charged to the city at a low nominal rate.

Public health nurses.—As in many other cities similar to Fort Smith, the development of sanitation and health protection under police powers by law and ordinance has gone far ahead of development of the work in communicable disease control, tuberculosis, and maternal and infant mortality. These latter activities are largely educational and depend upon securing the voluntary cooperation of individuals. This development can be carried out effectively only by public health nurses. Under ordinary circumstances greater dividends in life saving and disease prevention can be secured by money spent for public health nurses than by any other investment in public health work. Eventually a considerable staff will be necessary for public health work in Fort Smith. It is a wise policy to begin gradually and make demonstrations which will warrant expansion. One public health nurse to each 2,000 of the population is an ideal proportion. It is highly probable that in a few years the need and worth of at least 12 public health nurses in Fort Smith will be appreciated.

For reasons given, a very modest recommendation is made, viz, That at the earliest possible moment provision be made for the employment of three public health nurses in Fort Smith. With the

school nurse and one nurse attached to the county health unit, there will then be a total of five nurses in 1930. This is a modest beginning, but as the work is better understood and appreciated, others can be added to the staff.

REGULAR SESSION OF THE PERMANENT COMMITTEE OF THE INTERNATIONAL OFFICE OF PUBLIC HYGIENE, OCTOBER, 1929¹

The Permanent Committee of the International Office of Public Hygiene held its regular 1929 session at Paris from October 21 to 30, 1929.

Those present were: Messrs. Velghe (Belgium), president; Hamel (Germany), van Campenhout (Belgian Congo), Madsen (Denmark), Shahin Pacha (Egypt), Murillo (Spain), Rupert Blue (United States of America), Barrère (France), L. Raynaud (Algeria), Boyé (French Equatorial Africa), Duchêne (French West Africa), L'Herminier (Madagascar), G. S. Buchanan (Great Britain), Phipson (British India), McCallum (Australia), F. X. Le Noblet du Plessis (Canada), S. P. James (New Zealand), P. G. Stock (Union of South Africa), G. Natarangas (Greece), A. Lutrario (Italy), M. Tsurumi (Japan), P. Schmol (Luxemburg), Colombani (Morocco), de la Torre (Mexico), de Castro (Monaco), K. W. Wefring (Norway), N. M. Josephus Jitta (Netherlands), W. de Vogel (Netherlands Indies), Djavad Achtiyany (Persia), W. Chodzko (Poland), Ricardo Jorge (Portugal), Cantacuzène (Rumania), C. Kling (Sweden), H. Carrière (Switzerland), L. Prochazka (Czechoslovakia), de Navailles (Tunisia), Hussameddin (Turkey), Syssine (Union of Socialist Soviet Republics), Herosa (Uruguay), G. Yoannovitch (Yugoslavia), and M. Abt, Director of the International Office of Public Hygiene.

There were also present at the meetings of the committee Maj. J. Gilmour, president of the Sanitary Maritime and Quarantine Board of Egypt, and Dr. C. L. Park, acting medical director of the health section of the League of Nations.

I

The questions bearing on the application of the International Sanitary Convention of 1926 occupied, as in previous sessions, the attention of the committee in the quarantine commission as well as in plenary assembly.

1. The provisions of article 28 of the convention relating to the periodic deratization of ships (or the declaration of their noninfesta-

¹ Translation.

tion by rats) should be applied in conformance with the letter and the spirit of the article. A distinction must be made between the system of permanent and concerted action thus provided as much in the interest of navigation as in that of international public health, and the measures set forth by the articles of the convention applying especially to "infected," "suspected," or "uninfected" ships ("free" from plague), it being understood that, in the last case, deratization can be required (according to the terms of art. 27) only under exceptional conditions, such as the loading in an infected port of a cargo likely to attract rats and stowed so as not to allow efficient inspection.

As concerns the application of article 28, the committee considers it rational not to require that, as a matter of routine, every ship be inspected on its arrival for the presence of rats on board; if a valid certificate, that is, one issued within six months in a port designated by the International Office of Public Hygiene as qualified for that purpose,¹ is presented, inspection should be made only under very exceptional conditions. Such is the principle which inspires the new regulations which will shortly be in force in England.²

But, in order that the certificate (of deratization or exemption) be accepted, it is obviously necessary that it be worded in an explicit and complete manner. Quite a number of countries have already adopted the model established by the Office,³ and it would be desirable to make this adoption general.

Furthermore, it is necessary that the certificate bear the signature of the sanitary authority of the port where it was issued.

As concerns the procedure to be used in the deratization of ships, the committee is of the opinion that, as to the periodic deratization in execution of article 28 of the convention, nothing would force the authority of the port (qualified) which issues the certificate to use one procedure rather than another in order that the certificate thus issued be valid. The authority has the right to exempt the ship from periodic deratization; with more reason he should have the right to choose the method which he considers efficacious in carrying out the work, if he thinks it necessary.

Furthermore, as concerns a ship which does not come from a port infected by plague and which is not itself infected, account should be taken of the certificate presented by the ship until the expiration of the full six months' period (or seven, according to the terms of the third paragraph of art. 28) for which it was issued, whether there are rats on board or not.

¹ A second complete list (to Nov. 15, 1929) of ports thus designated by the Governments according to the terms of the International Sanitary Convention (art. 28) has just been published and distributed by the International Office of Public Hygiene to the sanitary administrations of the different countries. This publication annuls and replaces the preceding ones, consisting of a preliminary list and four supplements.

² See Bulletin of the International Office of Public Hygiene, Vol. XXI, 1929, p. 1872.

³ Idem, Vol. XX, 1928, p. 295.

The case of new ships, or, rather, those not yet having had six months of service, was especially considered by the committee. The convention did not foresee this situation, but it is not impossible to imagine that a ship before ever having been placed in service may be invaded by rats attracted by the scraps of food left by the workmen or for some other reason. In several countries the sanitary authorities, relying on experience in this direction, desire to hold to the very letter of article 28, which authorizes deratization or inspection in view of exemption "if no valid certificate is presented." The committee believes, therefore, that it should especially recommend to ship owners that when a new vessel is equipped they have it inspected by the sanitary authorities of the port and furnish it with a certificate even for the first six months of navigation.

Other similar matters have been reported to the committee, which, according to the method adopted, which method has already produced favorable results, has entrusted to the delegates of the interested Governments the task of regulating, if possible, the difficulties thus encountered.

2. The question of bills of health, under the recommendations of article 49 of the convention, still presents a triple problem:

(1) Certain countries require no bills (and so would look willingly upon the general abolition of them); others, perhaps, would also be disposed to abolish them.

(2) A rather important number of countries do not believe that they can yet do without the bill, but several would favor the abolition of the consular visa.

(3) The other countries—especially in America—always consider the consular visa an essential guarantee, but they are ready (if they have not already reduced it) to reduce the charge greatly.

The French Government has sent to the International Office of Public Hygiene a new communication on the subject of bills of health, important not only as concerns the reduction of the charges for the consular visa (lowered in France to one-fifth of what they were before the new regulation), but from the point of view of agreements to be concluded for the suppression of the visa. The British Government is also ready to take this view as concerns the ports of the United Kingdom. Similar declarations have been made by the delegates of the Governments of Germany and the Netherlands, which have just joined with the equally favorable intentions expressed by other Governments in former sessions of the committee.

It seems, consequently, that the office should take positive steps to bring about agreements between countries having the same points of view in this matter.

3. In conformance with the decision made by the committee in its preceding session, a report (which will be published in the bulletin

of the office) on the use of the wireless in quarantine operations has been prepared by Doctor Stock, delegate from the Union of South Africa, from the results of an investigation previously made.

The committee has reported again that it will be impossible to institute, obligatorily, by means of a general regulation, special privileges for ships which have sent a sanitary declaration by wireless; it also reports that the use of such messages tends to spread more and more, and that both navigation and the sanitary administrations find it reciprocally advantageous. To generalize and to make this usage as uniform as possible by the adoption of a simple and practical form message is the goal to strive for, and the committee has been of the opinion that the office ought to make a precise and final recommendation to the sanitary administrations of the different countries.

It would consider the following form as corresponding best, in a general way, to the conditions which may be presented in practice:

Moden.⁴

- A. What is the name of your ship and its port of registry?
- B. What day and at what time do you intend to arrive?
- C. What was your port of departure (first loading port) and your last port of call?
- D. Have you at present, or have you had during the last 15 days, cases of infectious diseases or suspected cases on board? If so, how many cases and what diseases?
- E. Have you at present cases of other diseases on board? If so, how many?
- F. Have you had deaths from disease (infectious or not) on board during the course of the voyage? If so, how many?
- G. Have you a doctor on board?
- H. Do you wish to land any patients? If so, how many, and what disease(s)?
- I. What is the number of your crew? Have you passengers on board? If so, how many?
- J. Do you intend to land any passengers? If so, how many, and what class?

It has been understood that, in transmitting to the Governments and to the sanitary administrations for eventual consideration in their port instructions to navigation, the form thus established and the complementary provisions of the report (delay in sending message, etc.), the office should request that in cases where these provisions and this form are adopted this adoption be reported to it so that it may advise the other Governments.

4. The committee did not occupy itself long with the question of ships' doctors. In the solution of this matter proper action has been taken by the International Office of Public Hygiene, the developments of which must be awaited. However, in order to hasten this as much as possible it will doubtless be useful to send to the large shipowners' associations, international as well as national, the report

⁴ Code word meaning "International quarantine message," already provided by the International Commission for the Code of Signals.

of Doctor Lutrario, delegate from Italy, already sent to the Governments by the office, calling their attention to the fact that an adequate regulation of the condition of ships' doctors is desirable, not only from the point of view of public health but also from that of their own interests.

Several Governments have already reported that they were considering the question. The Greek Government, especially, is preparing a fundamental reform in the institution of ships' doctors. In Great Britain the professional instruction of these doctors has received special attention, and the report sent by the office was submitted to the examination of a mixed commission of the Ministry of Health and the Board of Trade.

5. The report made in conformance with the decision of the preceding session on the question of rat guards by Doctor Park, then delegate from Australia, will be published in the Bulletin. New communications have, moreover, been made by the delegates from Spain, the United States of America, and British India.

The question was brought up of the difficulties and expense which the requirement might cause navigation in consecutive ports having different requirements as to the form or dimensions of rat guards, and it has been asked whether the actual efficacy of the measure justified such a requirement. The opinion of the committee on this point has not been modified up to the present time. The committee states that screen rat guards have no value unless they are properly constructed and certain specific conditions are observed relative to their application. In practice the strict observance of these conditions presents so many difficulties that one can not formally recommend the use of rat guards unless there exists a real danger of the introduction of rat plague, justifying the necessity of taking all possible measures for preventing the passage of rats.

In so far as concerns the type of rat guards, it does not for the moment seem possible to recommend the adoption of a uniform "standard" model. One may accept either the model in the form of a disk or the model in the form of a cone, with the following essential characteristics: Diameter of at least 0.9 meter for the disk or 0.6 meter for the cone; construction preferably to be of a single piece of galvanized iron at least 0.002 meter in thickness; a single opening for the mooring cable and furnished with some means of obtaining a tight closing around it. Constant surveillance is necessary, whatever method is employed, to assure the keeping in place of the screen (position perpendicular to the mooring, without slipping).

A model of electric rat guard tried in British India was described. The report of the researches of Major Taylor and Doctor Chitre will be published in the Bulletin of the Office. They will show that this model has given, in the course of laboratory experiments,

excellent results with an alternating current of 230 volts. Ships use generally only 120 volts direct current; but this difficulty can be solved by the use of an interrupter and a suitable small transformer, giving a current without danger in case of accidental human contact while preventing the passage of rats.

Furthermore, since the passage of rats takes place almost exclusively at night, trials could be made of the efficacy of semispherical screens with a reflecting inner surface placed across the moorings and with an electric bulb lighted in the center. The committee decided to send to the sanitary administrations of several countries a suggestion that these night experiments be tried, under practical conditions, as concerns electric rat guards and the use of dazzling light.

Naturally, the application of rat guards does not dispense with the simultaneous use of other measures, such as the whitewashing and lighting of the gangplanks, tarring of the moorings, etc. All these measures, however, although not negligible, are accessory because of the possibilities of the passage of rats between ships and land by other routes and the fundamental measure of defense against rat plague is always ratproofing.

6. The office has received from Surgeon General Cumming, Director of the Pan American Sanitary Bureau, information for the International Sanitary Maritime Annual. The committee has insisted that the countries which have not yet sent the necessary information concerning themselves for the Annual should do this as soon as possible. The first edition, issued according to the information of the committee in its preceding session, August, 1929, is exhausted; a second edition, brought up to date, should appear toward the end of the present year. There will be included here information on the different points in which interest was reported by the delegates.

7. One of the most important matters which the committee considered was that of the sanitary control of air navigation.

Already, in different countries which fear the importation of disease by the air route, regulations, sometimes particularly rigorous, have been established. While taking full account of the motives which have inspired the authorities responsible for the public health in these countries, the committee has considered that the very fact that the authorities have thought it necessary to act renders it more necessary that studies be undertaken without delay by the International Office of Public Hygiene with a view to specifying more clearly the measures of sanitary defense which may be justified in one circumstance or another.

It decided to form for these studies a special commission on air navigation, composed of a limited number of its members and able to appeal to the meeting of the International Commission on Air

Navigation. This special commission should present at the next session of the committee of the International Office of Public Hygiene a report on the results of its work.

The committee realizes that, under the present conditions, likely to change from day to day, it would be premature to fix regulations or even intangible principles and that the provisions adopted, whatever they may be, will necessarily be, at the beginning, subject to more or less profound revisions. However, it did not think that anything had arisen since its session of last May of such a nature as to alter the point of view set forth at that time. It stressed again the danger which lies in too closely assimilating the regulations of sanitary defense pertaining to air traffic and those pertaining to maritime navigation; and it continues to hold that the risks of spread of disease by airplane are relatively small, because of the class of passengers and the conditions of the landing ports, very different from those of maritime ports.

It has decided, consequently, that the office, in advising the Governments and the organizations interested of the provisions adopted for the immediate study of the question of the international sanitary regulation of air navigation, should call to their attention the principles adopted by the committee in its session of last May, that is, (a) fixed landing ports, (b) medical visit on arrival, (c) sanitary "surveillance"⁵ of persons coming from infected zones, and (d) in special and exceptional cases rendering this measure necessary, strict isolation during stay.

To these principles there must be added, however, two others:

1. The buildings, the occupants, and, in general, all the territory of the airport should be kept in an absolutely satisfactory condition from a sanitary point of view, and all the necessary precautions should be taken here as regards infectious diseases. These precautions, in the yellow fever zones, should include sheltering from mosquitoes—mosquito proofing—and measures for the destruction of mosquitoes.

2. Wherever the necessity is felt, special arrangements should be made to organize communication between airport doctors situated on the same routes regarding infectious diseases.

It should be insisted upon that these different recommendations do not include the institution of a system of bills of health for use in air navigation, nor do they provide the "observation"⁶ of the passengers.

The office will be at the disposal of Governments and international organizations—commissions or conferences—occupied with air navigation to advise them on the subject of sanitary control of this traffic.

8. In execution of article 151 of the convention, the International

⁵ In the sense of the International Sanitary Convention of 1926 (preliminary provisions).

⁶ In the sense of the International Sanitary Convention of 1926 (preliminary provisions).

Office of Public Hygiene has received from the Sanitary Maritime and Quarantine Board of Egypt the report on the Pilgrimage of Hedjaz of 1929.

This report was examined by the special commission on pilgrimage formed in October, 1928, then by the committee in plenary assembly. Taking into account the necessary complexity of the system of international control established in regard to pilgrimage, one may, if he takes a general point of view, be satisfied with the measures which, according to this system, have been taken in different ways and by different authorities for the prevention of infections.

All this evidence agrees in showing the advantages which result from the information gathered and transmitted by the regional bureau at Alexandria.

Moreover, the measures taken by the quarantine station of Tor have rendered obvious services; several times the station discovered that the conditions of ships bearing pilgrims left much to be desired, and the quarantine board immediately took suitable action.

The reciprocal agreement concluded at Beirut at the beginning of 1929, at the suggestion of the International Office of Public Hygiene, has shown itself extremely useful to the administrations concerned with the pilgrimage, especially in Syria, Iraq, Palestine, and Transjordan. The committee thinks that in continuing this practice of holding conferences of the representatives of the above-mentioned administrations there will be every chance for the sanitary surveillance of the pilgrims to be carried on in a manner easier for the administrations and less troublesome to the pilgrims themselves. The office should make recommendations in this direction when it thinks that there are a sufficient number of questions of detail to be regulated locally among the different national administrations interested.

The measures adopted or considered by the Persian Government in view of participating in the sanitary protection of pilgrimage have been reported to the committee. An organization specially formed in the Sudan gave good results for pilgrims crossing the Red Sea. An agreement was made with the Italian authorities of Eritrea (suppression of transportation by dhows and similar boats). As to the pilgrimage from the south, the measures for the protection of pilgrims were the object of a special investigation in British India; the station of Kamaran functioned in a satisfactory manner, and the system established by the Anglo-Indian-Dutch agreement of 1926⁷ proved efficacious.

The committee was concerned with the question of whether, from a purely technical point of view, it is desirable to encourage the pilgrims coming from the north (coast of Africa or Levant) to travel in numerous small groups. The committee thinks, on the contrary,

⁷ See Bulletin of the International Office of Public Hygiene, Vol. XIX, 1927, p. 145.

that the prevention of diseases and medical surveillance, as well as the welfare of the pilgrims, would be better assured by a good organization of transportation en masse on board well-equipped ships conforming in every way to the stipulations of the International Sanitary Convention of 1926 concerning pilgrim ships.

It has, besides, from an exclusively technical point of view, given an unfavorable opinion concerning the transportation of pilgrims from the north to Djeddah by alternate land and sea routes, these pilgrims being conducted (by ships well enough equipped to be used as pilgrim ships) to Port Said, landed en masse, and directed across Egypt to Suez, there to go by sea to their destination of Hedjaz. Such a method, independently of the administrative difficulties which it entails, would present serious risks from a sanitary point of view.

Finally, without altering the principles voiced in the preceding session concerning passports for pilgrimage, the committee took into consideration the suggestion of agreements being made between countries having similar conditions for the adoption of a uniform model of pass. A model of this kind was presented to it by the president of the Sanitary Maritime and Quarantine Board of Egypt and will be submitted to preliminary examination by the sanitary administrations interested.

II

The study of recent manifestations of plague has brought forth several new ideas regarding the epidemiology of the disease and the clinical evolution of certain of its forms. The Russian mission sent to Transbaikalia in 1929 showed that the tarabagan could remain a carrier of the plague bacillus for a long time without showing any sign of disease. During the epidemic which prevailed in inner Mongolia in the summer of 1928, in 378 cases of plague 118 cases were found to be septicemic, without buboes, without signs of pneumonic plague, and with presence of plague bacilli in the blood. To clear up the origin of this epidemic, there were captured, classed, and examined 50,000 rodents, of which there were about 40,000 rats of different species and 6,850 spermophiles, of which the most frequent was *Citellus mongolicus umbratus*; this is the spermophile which is in this country the reservoir of the plague virus. In Madagascar it has been observed that the pulmonary form was more frequent in regions where the minimum temperature fell below 14° and that it was very rare in those where the minimum was above 16°. It is known, however, that in other countries pulmonary plague may appear in summer and that it manifests itself sometimes in tropical regions.

Antiplague vaccination was definitely successful in the epidemic of Aden in 1928; 68 per cent of the population, which consists of about 44,800 persons, were vaccinated. The percentages of morbidity were

0.28 in those vaccinated and 10.16 in those not vaccinated; there was little difference in the mortality rates, which were, respectively, 59.3 and 75.7 per cent. In Egypt, where vaccination is carried on in the attacked villages with a strict control which permits hardly a person to escape vaccination, its great value is recognized. The mortality rate in 1928 was 34 per cent, while it was on an average of 59 per cent in the years preceding vaccination. At Morocco during the epidemic which prevailed in the territory of Agadir in the spring of 1929 persons in the contaminated villages or douars were vaccinated (8,670 persons); 327 cases occurred before vaccination, 30 after. In a certain number of douars there was no case after vaccination; but the abrupt arrest of the epidemic was also reported in certain douars which were not vaccinated. The mortality was not reduced by vaccination, contrary to what happened in Egypt. The use of antiplague vaccination is considered successful in Algeria, in French West Africa, where the lipo-vaccine (one injection with a large dose of bacilli) has perfectly protected the troops, and in the Canary Islands, where 28,000 vaccinations were made from 1926 to 1928 at Las Palmas and at Santa Cruz de Tenerife at the time of small epidemics, which did not develop further.

Yellow fever has not been reported in British West Africa since the occurrence of 5 cases at Bathurst (Gambia) at the end of 1928. In the French colonies 3 cases were reported in 1928 on the Ivory Coast and 3 in Dahomey. These last cases were in three Europeans attacked at the same time in a place where no source of virus was known. There is to be noted one case in which the incubation period seems to have been reduced to 48 hours. In Brazil the vague epidemic of 1929 comprised 646 cases, the last case occurring in September. At the beginning of the actual recrudescence of yellow fever, before the first case officially reported May 31, 1928, several scattered cases in three quarters of Rio de Janeiro had been unrecognized. The disease found favorable ground in the city, because of the fact that two-thirds of the population certainly had no immunity, either from former endemicity or created by prolonged stay in a warm country. The stegomian index attained 22 per cent. Fortunately the epidemic broke out at a time (June) when the multiplication of mosquitoes was on the decline. Prophylaxis was organized with great energy and admirable completeness. A veritable army of about 7,000 larva and mosquito hunters was put into service thoroughly instructed in the customs of *Stegomia* and divided by districts under the control of doctors. The adult mosquitoes were destroyed especially by a method of general action, the spraying of a liquid with a kerosene base, in dense clouds, with the aid of large pneumatic painting apparatus. The pools of water were systematically destroyed, especially in hollows of trees; the water was replaced by damp sand in cemetery flower pots; in

the suburban districts three kinds of small larva-eating fish were generously distributed. The destruction of the *Aedes aegypti* and their larvæ may now be considered as complete. Another very active campaign of mosquito destruction, the details of which were reported to the committee, was carried on in the Belgian Congo in the region of Matadi after the epidemic of yellow fever in 1928. New observations were made that the eggs of the *Aedes aegypti* might, after a long period of drought, hatch suddenly on the occasion of a rain (Roubaud); consequently in the future the eggs must be killed in the dry shelters either by cresol or disinfection with a sulphur lamp.

The laboratory researches carried on by Hindle in England have shown that the virus of yellow fever, perfectly dry, keeps three to four months; that vaccines prepared according to different techniques generally protect the monkey against the trial inoculation of a fatal dose of the virus. At Amsterdam, Snyders and Dinger, experimenting with mosquito (*Aedes aegypti* and *Aedes albopictus*) larvæ from eggs sent from Java, have succeeded in transmitting yellow fever to the *Macacus rhesus* and with more difficulty to the *M. cynomolgus*. The possibility of the transmission of the disease by species of mosquitoes which are very abundant in the Far East has now been established. In the course of these researches two laboratory infections occurred in England and one at Amsterdam; still others were caused in Europe by the virus brought from Africa; but all were of a benign character. Nevertheless, the danger of the importation of yellow fever into regions free up until now, and where *Stegomia* exist, should not be lost sight of. The Government of the Netherlands Indies is going to take measures to protect that country.

The yellow fever commission, formed in the committee of the International Office of Public Hygiene, believing that the new information acquired on the virus and on the epidemiology of yellow fever might motivate certain modifications of the conclusions formulated by the Third Epidemiologic Subcommittee (yellow fever) of the International Sanitary Convention of 1926, has made an examination of these conclusions, and has submitted for the approval of the committee a new wording of the fundamental ideas which should serve as a basis for the international prophylaxis of yellow fever. The most important change is the fixing at three days instead of five days from the beginning of the disease the period during which the patient may infect mosquitoes. It has been recalled, besides, that the larval shelters of *Aedes aegypti* are always found in the immediate neighborhood of houses and that the adult mosquitoes very rarely leave the spot where they were born. The commission has also drawn attention to the danger of the spread of yellow fever which might arise from laboratory researches carried on in uninfected countries where *Stegomia* exist. The proposals of the yellow fever commission have

been adopted by the committee. When they will have been examined again by the interested countries, the commission proposes to study the suitability of adapting certain articles of the International Sanitary Convention of 1926 to the new ideas.

The epidemic of smallpox which broke out toward the end of July in the Netherlands, although imported from the Netherlands Indies, where smallpox with high mortality is the prevailing form (20 to 30 per 100), has been in the majority of cases of benign type, even in unvaccinated small children—pustules which seem not to penetrate the dermis and heal most often without scars, excellent general condition from the beginning of the eruption, no fever of suppuration. But beside these cases, which recall alastrim, there are severe cases impossible to distinguish from classic smallpox. The mortality at Rotterdam in 317 cases was 5.6 per 100. The deaths occurred most often in patients who showed petechiae among the pustules. Vaccination was largely carried on in the epidemic foci (more than 1,200,000); the present diminution in the number of cases gives the impression that the epidemic is checked. Since the regulations in force in the Netherlands impose, in the case of smallpox, very strict measures (isolation of contacts), it seemed suitable to the sanitary authorities to distinguish between the serious cases (*variola major*) and the benign cases (*variola minor*), the medical inspector having the power, in case of the second, either to apply or to mitigate the measures. The committee has not issued an opinion on the question, but the opinion has been expressed that, if the distinction between the two types of smallpox may be scientifically legitimate and even be imposed in practice during the course of certain epidemics, it will be dangerous to take it into account in the presence of isolated cases or at the beginning of an epidemic.

In Great Britain about a hundred benign cases per week continue to be reported. The surveillance of contacts is strictly maintained, and those who leave England for another country are reported to the country of destination. An attempt is being made to diminish the unpopularity in certain sections of antivariolic vaccination by reducing the dose of vaccine and the number of injections.

The vaccination campaign in the Netherlands has resulted in a rather large number of cases of post-vaccinal encephalitis (68 from January 1 to October 10, of which 14 were in persons revaccinated). In Great Britain, from October 1, 1927, to the end of September, 1929, the number was between 75 and 77; in Germany, during the last three years, 51 with 22 deaths (5 in persons revaccinated, all fatal). In Sweden 13 cases have been ascertained, after critical examination, from 1924 to 1928, and 3 in 1929 (proportion 1 : 15,000). Two of these last were fatal, one after 24 hours of sickness; there were found in sections of the brain of these two cases ovoid or rounded corpuscles

containing masses of chromatin strongly colored by the Giemsa method, which are considered to be infusoria (Kling, Lonberg, and Wassen).

The commission which the committee of the office charged, at the time of the last session, with studying the questions relating to smallpox and antismallpox vaccination has begun to collect information on the regulations in force in different countries in regard to persons and their households attacked by smallpox, on the provisions concerning vaccination and on the actual situation of the population on the question of vaccination, and on the preparation and control of vaccinal lymphs. The information sent by Germany, Bulgaria, Spain, Great Britain, Japan, Mexico, Norway, Sweden, Yugoslavia, and the Union of Socialist Soviet Republics will be collected and published in a supplement to the monthly bulletin of the office.

In addition, the commission on smallpox and vaccination is charged with the collecting of as much information as possible in order to present to the sessions of the committee, reports on—

1. The frequency in different countries, the conditions of appearance, the etiology, and the prophylaxis of post-vaccinal encephalitis.
2. The influence on the local and general reactions, the changes in blood and organs, and as much as possible the degree of immunization obtained: (a) By processes of injection reducing to a minimum the rupture of the tissues; (b) by small doses of vaccine; (c) by the dilution of the lymph; and (d) by the decrease in the intervals between successive vaccinations.

3. The use of killed virus.

The committee appeals to the collaboration of all the delegates to aid in its task by sending what information they may gather in their respective countries.

The vaccination of infants in the native population of Dakar (French West Africa), against tuberculosis by the B. C. G. resulted in a decrease in the general infant mortality rate from 24 to 14 per 100. This result aroused the French minister of the colonies to prescribe this vaccination in all the colonial regions where tuberculosis is frequent. In Rumania the number of infants vaccinated has now reached 40,000; the general infant mortality, which was very high, has fallen to half and in some sections to a quarter of the former rate; the infant mortality from tuberculosis in infected environments has been reduced to rates of 1.4 to 2.3 per 100. It is known that the diagnosis of tuberculosis is often difficult in very small children; in Denmark it was reported that this was largely facilitated by the systematic examination of the washings from the stomach. The presence of the tubercule bacillus in the stomachs of small children brings up the problem of their isolation in special hospital rooms or in special sanatoria for tuberculous children. A very careful study

made in Belgium on the effects of the inoculation of the B. C. G. in pregnant women has brought new proofs of the harmlessness of this bacillus.

The committee of the office decided in its session of May, 1929, to collect information on the struggle against tuberculosis in the industrial sections of different countries. The replies received from Germany, Great Britain, and Norway agree in stating that in these countries sickness insurance procures for the workers in industry attacked by tuberculosis medical care, sojourn in a sanatorium or hospital, aid during unemployment or assistance to their families, in conditions which render superfluous an appeal to the private initiative of captains of industry. This is exercised, however, in certain large establishments in Germany and Great Britain. The question which has not yet received adequate solution is that of the return to work of the tuberculous persons, cured or with the disease arrested; the institutions which have as a goal assuring the employment of this class of former sick persons should be developed or increased, such as committees for the assistance of recovered persons in England, colonies of the type of Papworth in England and the invalid-insurance fund of Breslau in Germany, the sanatorium for the resumption of work at Amsterdam, the sanatorium factory of Leysin in Switzerland, the employment bureau for tuberculous persons of the league against tuberculosis of Zurich, and the "half-time bureau" recently inaugurated at Bordeaux and Nancy, France. The problem is in other respects more general and can be considered in its entirety by the committee. It is largely what is being done and what can be done to assure resources through labor to tuberculous persons who do not need to be placed in a hospitalizing institution.

Undulant fever caused by the Bang bacillus produces at present about 500 cases per year in Denmark; the morbidity is from 2 to 3 per 100. It was noted that among eight women attacked during pregnancy, seven had abortions. Is the Bang bacillus a more frequent cause of abortion than is thought? Inquiries have shown that 60 per cent of the patients are infected directly from cattle and 40 per cent only through milk. This is a low infection rate, since a third or a quarter of the milk consumed at Copenhagen contains the bacillus of abortion of cattle. The relative frequency of undulant fever in Denmark should be attributed to the custom of consuming raw milk. The Danish strain of Bang bacillus is not more virulent than the Swedish strain; they are biologically different from the *Micrococcus melitensis* and the *Bacillus abortus* of pigs. In Great Britain 6 per cent of the milk contains the Bang bacillus; however the cases of known native origin number only 6 or 7. The milk, however, is generally pasteurized. In Sweden there continue to be reported 2 or 3 cases per week, more or less grouped in foci; direct contact with cattle is

rarely blamed. In Switzerland, where the population is opposed to the pasteurization of milk, the disease seems to be more frequent than is thought, especially in the cantons of Vaud and Zurich. In the United States the *B. abortus* of pigs is considered more pathogenic than that of the cow, to which, however, several cases of undulant fever are attributed. In Algeria, in the vicinity of Oran, the organization of a large creamery in which all the goat milk will be pasteurized has as its aim the elimination of undulant fever.

Some very scattered cases of poliomyelitis, constituting an epidemic menace, were reported in Belgium during the summer of 1929. In the Netherlands the number of cases reported (209 in nine months) is about four times the number of former years. In Germany the year 1927 marked a maximum (2,732 cases); for 1928 and 1929 the figure decreased by about a thousand. In Switzerland the disease, which was entirely sporadic (about 100 cases per year), has taken on more the character of an epidemic since 1927. In 1928, 28 cases were noted in a group of two or three villages in the canton of Freiburg. The intestinal forms, little known to doctors, are not reported. In Rumania the years 1927, 1928, and 1929 have each presented a slight epidemic, with the beginning in April and the maximum in August-September; the number of cases was, respectively, 2,196, 416, and 51. Especially at the time of the first epidemic diffusion by radiation from a center (Bucharest) was clearly reported, and in many cases the propagation from house to house or the importation of the contagion into a healthy environment by a known person. Interhuman contagion has, then, been the most frequent method of transmission. The epidemic prevailing in a locality leaves after it a general immunity in the population. It is thus that in 1,005 communes attacked only 92 were struck in two different years. In Sweden the number of cases to the first of October, 1929 was 429; an attempt at prophylaxis by the chlorination of drinking water is being made, based on the theory of the hydrous origin of the infection. In Great Britain researches have been carried on with a view to ascertaining the possibility of the passage, from the nasal passages to the cerebral centers, of infections such as poliomyelitis, lethargic encephalitis, and cerebrospinal meningitis. It has been proved that in the rabbit substances such as very fine bits of charcoal, Prussian blue, introduced into the nasal passages, with no traumatism, pass rapidly into the brain.

It is useful to give periodically, at intervals of a few years, a survey of the situation in the different countries with regard to the venereal diseases, especially syphilis. In Great Britain, with the same methods of calculation which led to the estimation toward the beginning of the present century of 50,000 per year, the number of new cases of syphilis reaches at present only a figure of about 7,000; the deaths of children under 1 year attributed to syphilis reached, in 1917, a

rate of 2.03 per 1,000 births in England and Wales; this rate is at present no more than 0.71. In Germany an investigation disclosed that, in 1919, the average rate of new cases of venereal diseases was 87 per 10,000 inhabitants; in 1927, according to a similar investigation, this average had decreased to 58, of which 43.6 is for gonorrhea and 13.1 for the different forms of syphilis seen for the first time by a physician. The law of the Empire of February 18, 1927, aims to improve still more the condition by instituting compulsory declaration to a sanitary authority and compulsory prolonged treatment, free of cost when gratuity is justified. In Italy the decrease in syphilis is considerable; the mortality from syphilis of children less than one year, for example, fell in 1926 to a quarter of what it was in 1917. The treatment is in principle free and anonymous. An important factor in the decrease of the venereal diseases is the governmental institution, the "Dopo lavoro," with all the material advantages and the healthy distractions which it offers to manual laborers and intellectuals. In the method employed in Belgium, which consists in greatly facilitating the treatment and in issuing the medicines free from clinics and dispensaries, produced very rapid results; but since three years ago the situation has remained stationary. A new method of progress is going to be tried, which consists in the issuance of free medicines to all the patients who apply, outside dispensaries and clinics, to doctors having taken special instruction in syphilography. In Denmark the reduction in syphilis has been continuous since the law of 1906. The fact that all the serological examinations are carried on in the State Serotherapeutic Institute permits a complete census of syphilitics to date; the number is at present about 1 per 100 of population. In Switzerland there has also been a decrease in syphilis. An investigation is going to be made and will be compared with that which, 10 years ago, gave a rate of 1 to 2 per 100. In the Netherlands the only certain statistics concern the marine. That which comprises, for example, the European sailors in the Netherlands Indies shows during the course of the last few years a decrease from 1.2 to 0.4 per 100; the figures 15 years ago were much higher. In the United States, recent very careful studies to which more than 20,000 doctors contributed, fixed at 1.49 per 1,000 inhabitants the number of cases of primary syphilis under treatment, and at 4.24 per 1,000 the total number of cases being treated. Another estimate, the basis of which is less sound, puts the number of new cases per year at 3.46 per 1,000. Syphilis is much more frequent among the black population than among the white. Luxemburg is the only country in which a recent increase in syphilis has been reported to the committee.

As to gonorrhea, it decreased by a third in Germany between 1919 and 1927, according to the comparison of the number of patients which have consulted a doctor for the first time in those years. In

Great Britain, one can only say that it is not increasing. In Switzerland the situation seems to be stationary.

A great effort for the organization of the struggle against the venereal diseases has been made in France, where the amount of the State budget for this purpose in 1929 reached the sum of 11,000,000 francs, and the number of consultations in dispensaries and special services 2,200,000; in the Union of Socialist Soviet Republics, which has 427 dispensaries and has made treatment compulsory by law; in Turkey, where treatment is compulsory and is assured by the combined action of the Government (which grants an amount of 3,000,000 francs), the departments, and the municipalities; in Yugoslavia, which requires the creation of centers for treatment and prophylaxis, respectively, in communes of 10,000 and 20,000 inhabitants; in Bulgaria; in Egypt, whose 14 dispensaries and special hospital services are frequented by an enormous number of persons; in Algeria, where, under the direction of the Algerian Office of Preventive Hygiene, 200 centers are operating, where medicines are furnished free by the French antivenereal service; in Morocco, where all the sanitary organizations, besides the seven large dispensaries, carry on antivenereal propaganda and attract an extremely interested clientele, particularly women who hope by treatment to combat sterility.

Norway, since the law of May 31, 1918, and Germany, since that of 1927, with slightly different conditions, do not authorize the marriage of persons with venereal diseases unless the danger of contagion has been removed, or at least unless the other party to the marriage knows of the disease and the two parties are instructed in the dangers that menace them. In Yugoslavia a person who has been treated can not marry without presenting a certificate of cure, and any person who has contaminated another during the course of the treatment falls under the power of penal law. This last provision also exists in Turkey. In Egypt the contracting parties should, before marriage, furnish a written and signed declaration that they are free from venereal diseases.

A commission formed in Italy, presided over by the President of the International Institute of Agriculture at Rome and which has as a mission the bringing about of the collaboration of this institution with the International Office of Public Hygiene in the study of the comparative mortality of cities and rural sections, has made a critical examination of the methods of procedure which it would recommend in making this study. To the comparison, made following a well-decided plan, of several urban and rural districts suitably chosen, it suggests adding a monograph describing the climatic, demographic, economic, and sanitary conditions of these districts. In England statistics exist which group, on the one hand, the urban

districts (towns, counties), and, on the other, the rural districts. But the intervention of many factors makes difficult the interpretation of such total statistics. Thus the cities of the south of England have a lower mortality rate than the rural districts of the north, although the mortality for the whole country is higher in the urban districts than in the rural districts.

The information gathered by the office on the number and territorial distribution of hospitals in the different countries was augmented by an important contribution from the Union of Socialist Soviet Republics and by complementary information on Germany.

Notes have been sent to the office on assistance for mothers before and after confinement under sickness insurance in Germany and under the protection of the mother and child through numerous communal and intercommunal institutions of which a census is in progress; on the professional education of visiting nurses in France and the extent of their activities; on the legislation, organization, and functioning of the protection of maternity and early infancy in France.

The desire to create an efficient control of the consumption of narcotics under the application of the Convention of Geneva in 1925 has led to the organization in Spain of the importation of narcotics by the State and their distribution according to the strict needs of patients. The cultivation of opium, which produced about 50,000 pounds per year, has been suppressed in Egypt, after ascertaining that the exportation of the commodity was nil.

The disease, provisorily called "Marseilles exanthematic fever" and which presents an interest from the point of view of international sanitary conventions because of the possible confusion with typhus exanthematicus, appeared during the summer of 1929 with several cases in Madrid and two cases in Lisbon, for the first time leaving the Mediterranean basin where it was discovered (Provence, Italy, Tunis). Characterized by a spotted papular eruption, attacking the face, often accompanied by arthralgia, it presents as particularly striking the existence of a small grayish vesicle, finally leaving a black scab, often on the lower limbs, which may be the trace of the bite of the insect or the larva of the insect transmitting the disease. This disease is similar to Japanese fluvial fever—*Tsutsuganomushi*—endemic in the Provinces where field laborers work along long rivers and are bitten by an acarid, the *Akamushi*. The reports of these two diseases and those of similar eruptive fevers in the Netherlands Indies and Malaysia have not been made with precision and warrant study.

The origin of several epidemics in Denmark has been attributed to milk during the last two years—one of streptococcic angina, which comprised 150 cases, 2 due to paradysenteric bacilli, with 150 and 200 cases, and 2 of paratyphoid. One of these last, at Odense, attacked

200 persons and followed exactly the course of milk coming from a farm where an employee had had a light case of paratyphoid. The Danish law prohibits any person ill or a carrier of bacilli to work with milk and provides indemnities for lack of earning power.

The detailed study of the fermentation of sugars, especially of xylose with different stocks of typhous bacilli isolated in Yugoslavia has permitted distinction of types among the stocks and the determination of geographic distribution. Perhaps account will be taken of these characteristics in the preparation of antityphus vaccines. *

Sleeping sickness is not widespread in French West Africa; the regions favorable to the existence of *Glossina* are rather rare. In the South and the center of the upper Volta there is a section which is slightly infected. The principal focus is at Togo, in the region bordering Dahomey. An investigation which reached 28,000 persons (half of the population) showed in the focus of Dahomey a proportion of 4.3 per 100 persons attacked.

Among the infectious diseases of childhood, diphtheria alone has decreased in Switzerland; measles increases periodically every three to five years. Mortality, on the other hand, is decreasing for these diseases; diphtheria is more serious than measles; scarlatina is almost never fatal. In Egypt the mortality from measles sometimes reaches 50 per cent; there is a tendency to pay no attention to the disease until complications have set in.

The contagious diseases present seasonal variations, which are observed regularly in certain groups of countries; thus it is that scarlatina, diphtheria, common angina, and acute rheumatism have their maximum in January and their minimum in July; for bronchopneumonia and tuberculosis the maximum is in February, the minimum in August; for cerebrospinal meningitis the maximum is in May and the minimum in autumn; for poliomyelitis, the typhoid and paratyphoid fevers, and infantile diarrhea the maximum is in August or September; measles and whooping cough appear in irregular waves. As to the causes of these variations it may be noted that the richness of the blood in hemoglobin is at its minimum in January and maximum in July, that respiration is more ample and less frequent in summer, a phenomenon on which light should have an influence and which would contribute in giving its own characteristic to the curve of respiratory diseases. Other factors, difficult to ascertain, probably intervene.

Communications have also been presented to the committee on the following: The epidemic of smallpox at Aden in 1929, which an intense vaccination campaign checked after two months; the characteristics of variolic rash and its early localization on the external side of the arm, when vaccination has been done before; the studies made at the hospital of infectious diseases of the Kwantung Govern-

ment at Dairen on the toxins of the scarlatina streptococcus and the rôle of the streptococcus as causal agent in scarlatina; the discovery in Yugoslavia of young forms of gametes in afebrile forms of tropical fever; the properties of the rabic virus and the mechanism of immunization against rabies; the operation of the antirabic services in French West Africa, the island of Madagascar (country where no death has been reported), and in Indo-China (10 deaths in the course of treating 1,905 cases); the organization of the hygienic service in Mexico (child hygiene centers, industrial hygiene service and social aid, antituberculosis organization, campaign against alcoholism, leper census, cancer, commissions to study the "mal del Pinto" and onchocerciasis, and for the campaign against these diseases); legislation concerning tuberculosis and the venereal diseases in Bulgaria; experiments in the destruction of rats and insects by cyanogen chloride carried on in the port of Valencia (Spain); the destruction of parasites by chloropicrine by means of an arrangement which permits disinfection of a place from outside and without a mask; regulation of the use of antiseptics and coloring matter in foodstuffs in Germany and Spain.

COURT DECISION RELATING TO PUBLIC HEALTH

Injunction restraining enforcement of milk law denied.—(United States District Court, S. D. Florida; *Noble v. Carlton*, Governor of Florida et al., 36 F. (2d) 967; decided Jan. 4, 1930.) Chapter 13696 of the 1929 laws of Florida regulated the sale of milk and cream. The plaintiff, a citizen of Georgia, sought to declare certain provisions of the act unconstitutional, and asked that the defendants, certain State and local officials of Florida, be restrained from enforcing the act or any regulations promulgated thereunder. The case was heard by a court of three judges upon a prayer for an interlocutory injunction. By the court's decision an injunction was denied, the points passed on being as follows:

(a) The exemption from the act's provisions of milk producers in Florida who produced milk from five cows or less and disposed of such milk, by sale or otherwise, in the county where the milk was produced, was not unreasonable and did not deprive plaintiff of the equal protection of the law in violation of the fourteenth amendment to the Federal Constitution.

(b) As that portion of the act making it unlawful for any person, firm, association, or corporation, except the initial producer doing business in Florida, to receive, offer for sale, transport, prepare or deliver for transportation or sale, as milk processors or dealers, any milk or cream without first obtaining a State license as a dealer, was construed by enforcement officials as not requiring of plaintiff

a license to bring his milk into Florida, no harm could come to him and he was not, therefore, in a position to complain of this provision.

(c) The requirement in the act that milk be labeled to show the place of production was not violative of the fourteenth amendment to the United States Constitution, as this requirement was general and applied to milk produced in Florida as well as in other States.

(d) The penalties, a fine of not more than \$5,000 or imprisonment in the county jail for not more than 12 months, were not excessive.

DEATHS DURING WEEK ENDED MARCH 8, 1930

Summary of information received by telegraph from industrial insurance companies for the week ended March 8, 1930, and corresponding week of 1929. (From the Weekly Health Index, March 13, 1930, issued by the Bureau of the Census, Department of Commerce)

	Week ended Mar. 8, 1930	Corresponding week, 1929
Policies in force.....	75, 538, 052	73, 509, 710
Number of death claims.....	16, 292	16, 767
Death claims per 1,000 policies in force, annual rate.....	11. 2	11. 9

Deaths from all causes in certain large cities of the United States during the week ended March 8, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index, March 13, 1930, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Mar. 8, 1930		Annual death rate per 1,000, corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Mar. 8, 1930 ¹
	Total deaths	Death rate ¹		Week ended Mar. 8 1930	Corresponding week, 1929	
Total 64 cities.....	7, 711	13. 8	14. 6	727	858	³ 67
Akron.....	45	.....	.....	7	8	64
Albany ¹	38	16. 5	17. 8	3	3	60
Atlanta.....	95	19. 4	18. 4	11	17	116
White.....	44	.....	.....	6	7	190
Colored.....	51	(²)	(²)	5	10	79
Baltimore ¹	275	17. 3	17. 3	21	21	71
White.....	214	.....	.....	12	16	52
Colored.....	61	(²)	(²)	9	5	146
Birmingham.....	67	15. 7	19. 5	8	11	75
White.....	34	.....	.....	4	3	62
Colored.....	33	(²)	(²)	4	8	95
Boston.....	230	15. 0	16. 2	28	22	79
Bridgeport.....	44	.....	.....	8	4	137
Buffalo.....	158	14. 8	15. 4	15	19	67
Cambridge.....	33	13. 7	14. 9	4	4	74
Camden.....	33	12. 7	15. 8	3	8	54
Canton.....	19	8. 5	13. 8	3	3	74
Chicago ¹	767	12. 7	13. 3	71	109	63
Cincinnati.....	147	.....	.....	15	17	89
Cleveland.....	232	12. 0	11. 9	28	28	84
Columbus.....	84	14. 6	12. 0	3	5	29
Dallas.....	52	12. 4	10. 8	7	6	.....
White.....	43	.....	.....	7	5	.....
Colored.....	9	(²)	(²)	0	1	.....
Dayton.....	29	8. 2	12. 2	2	6	30
Denver.....	98	17. 4	17. 7	6	9	63
Des Moines.....	42	14. 4	6. 9	1	4	17
Detroit.....	245	9. 3	14. 0	48	65	74
Duluth.....	22	9. 8	9. 4	1	3	27
El Paso.....	36	15. 9	23. 0	6	10	.....

Footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended March 8, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929—Continued.

City	Week ended Mar. 8, 1930		Annual death rate per 1,000, corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Mar. 8, 1930
	Total deaths	Death rate		Week ended Mar. 8, 1930	Corresponding week, 1929	
Erie.....	26			4	2	85
Fall River.....	31	12.0	12.4	1	3	23
Flint.....	37	13.0	11.2	6	8	70
Fort Worth.....	35	10.7	15.3	2	7	
White.....	26			1	5	
Colored.....	9	(⁵)	(⁵)	1	2	
Grand Rapids.....	45	14.3	7.0	6	2	91
Houston.....	70			10	9	
White.....	44			8	9	
Colored.....	26	(⁵)	(⁵)	2	0	
Indianapolis.....	113	15.4	15.7	9	12	67
White.....	94			9	10	78
Colored.....	19	(⁵)	(⁵)	0	2	0
Jersey City.....	76	12.2	13.3	7	3	61
Kansas City, Kans.....	23	10.1	7.1	0	0	0
White.....	20			0	0	0
Colored.....	3	(⁵)	(⁵)	0	0	0
Kansas City, Mo.....	106	14.1	16.0	14	10	109
Knoxville.....	30	14.8	10.4	2	8	47
White.....	22			1	7	26
Colored.....	8	(⁵)	(⁵)	1	1	247
Los Angeles.....	271			20	26	61
Louisville.....	78	12.3	13.9	4	7	35
White.....	55			3	5	30
Colored.....	23	(⁵)	(⁵)	1	2	72
Lowell.....	32			5	6	119
Lynn.....	24	11.9	11.9	0	1	0
Memphis.....	100	27.4	23.0	5	14	60
White.....	43			1	3	18
Colored.....	57	(⁵)	(⁵)	4	11	135
Milwaukee.....	132	12.6	13.7	18	24	61
Minneapolis.....	104	11.9	13.4	6	11	39
Nashville.....	51	19.0	17.9	7	5	108
White.....	35			4	1	82
Colored.....	16	(⁵)	(⁵)	3	4	190
New Bedford.....	27			2	7	51
New Haven.....	45	12.5	15.0	1	4	19
New Orleans.....	182	22.1	21.4	12	17	75
White.....	113			4	6	30
Colored.....	69	(⁵)	(⁵)	8	11	135
New York.....	1,610	14.0	15.1	165	164	69
Bronx Borough.....	213	11.7	13.4	15	14	35
Brooklyn Borough.....	532	12.0	12.7	70	76	74
Manhattan Borough.....	655	19.5	20.9	63	54	103
Queens Borough.....	167	10.2	10.6	14	14	41
Richmond Borough.....	43	14.9	18.7	3	6	56
Newark, N. J.....	116	12.8	14.3	8	14	42
Oakland.....	70	13.3	15.2	3	7	36
Oklahoma City.....	37			5	3	98
Omaha.....	60	14.0	17.6	3	7	34
Paterson.....	34	12.2	16.2	1	2	17
Philadelphia.....	522	13.2	14.4	57	48	84
Portland, Oreg.....	68			3	2	37
Providence.....	91	10.6	14.0	9	6	83
Richmond.....	63	10.9	17.7	4	7	59
White.....	37			1	5	22
Colored.....	26	(⁵)	(⁵)	3	2	131
Rochester.....	86	13.7	13.0	5	10	44
St. Louis.....	249	15.3	14.2	8	12	26
St. Paul.....	58			3	3	30
Salt Lake City.....	32	12.1	15.5	3	1	47
San Antonio.....	91	21.8	22.2	13	17	
San Diego.....	45			3	5	63
San Francisco.....	160	14.3	14.3	10	6	69
Schenectady.....	31	17.3	16.2	3	1	94
Seattle.....	79	10.7	11.4	4	4	40
Somerville.....	21	10.7	10.7	3	5	98
Spokane.....	31	14.8	21.0	2	3	52
Springfield, Mass.....	35	12.2	14.3	3	3	47
Syracuse.....	51	13.3	14.7	5	6	62

Footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended March 8, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929—Continued.

City	Week ended Mar. 8, 1930		Annual death rate per 1,000 corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Mar. 8, 1930
	Total deaths	Death rate		Week ended Mar. 8, 1930	Corresponding week, 1929	
Tacoma.....	30	18.4	12.7	1	4	26
Toledo.....	71	11.8	14.3	6	7	55
Trenton.....	39	14.6	19.1	8	3	149
Utica.....	37	18.5	17.5	6	9	170
Washington, D. C.....	151	14.3	15.4	11	12	64
White.....	89			8	4	69
Colored.....	62	(²)	(²)	3	8	53
Waterbury.....	25			3	5	77
Wilmington, Del.....	35	14.2	9.3	5	2	113
Worcester.....	76	20.1	15.8	8	1	104
Yonkers.....	21	9.0	10.7	1	6	24
Youngstown.....	43	12.9	6.0	3	3	47

¹ Annual rate per 1,000 population.

² Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.

³ Data for 72 cities.

⁴ Deaths for week ended Friday.

⁵ In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 83; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended March 8, 1930, and March 9, 1929

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended March 8, 1930, and March 9, 1929

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Mar 8, 1930	Week ended Mar. 9, 1929	Week ended Mar 8, 1930	Week ended Mar. 9, 1929	Week ended Mar. 8, 1930	Week ended Mar 9, 1929	Week ended Mar 8, 1930	Week ended Mar. 9, 1929
New England States								
Maine.....	3	-----	27	7	82	234	0	0
New Hampshire.....	5	-----	-----	24	13	36	1	0
Vermont.....	1	1	-----	-----	2	1	0	0
Massachusetts.....	62	88	7	186	680	365	3	6
Rhode Island.....	13	6	-----	8	4	70	0	0
Connecticut.....	22	18	20	51	39	484	0	5
Middle Atlantic States.								
New York.....	132	319	24	180	761	1,123	25	31
New Jersey.....	130	125	27	67	659	294	6	1
Pennsylvania.....	138	148	-----	-----	915	1,910	5	22
East North Central States:								
Ohio.....	56	228	33	76	747	847	10	4
Indiana.....	21	34	-----	37	135	436	23	0
Illinois.....	145	174	13	235	578	1,109	13	21
Michigan.....	64	84	10	26	603	520	37	36
Wisconsin.....	12	23	34	88	979	850	2	17
West North Central States.								
Minnesota.....	6	14	-----	1	284	595	6	2
Iowa.....	11	5	-----	2	690	17	1	1
Missouri.....	48	61	15	99	80	397	20	28
North Dakota.....	4	7	-----	-----	36	49	3	4
South Dakota.....	3	1	-----	-----	225	81	1	8
Nebraska.....	25	33	22	10	541	29	2	5
Kansas.....	16	15	1	40	365	167	3	1
South Atlantic States:								
Delaware.....	3	2	1	1	3	34	0	0
Maryland ¹	26	24	48	230	27	125	2	3
District of Columbia.....	13	10	4	7	11	14	0	1
West Virginia.....	25	13	42	55	96	143	2	1
North Carolina.....	31	36	21	-----	50	100	5	0
South Carolina.....	9	11	1,072	716	-----	2	6	0
Georgia.....	10	3	154	87	285	41	5	1
Florida.....	13	9	4	7	275	19	0	0
East South Central States:								
Kentucky.....	-----	5	-----	32	114	-----	3	0
Tennessee.....	18	14	82	214	269	7	54	1
Alabama.....	11	17	153	204	242	224	3	1
Mississippi.....	16	10	-----	-----	-----	-----	25	0

¹ New York City only.

² Week ended Friday.

*Cases of certain communicable diseases reported by telegraph by State health officers
for weeks ended March 8, 1930, and March 9, 1929—Continued*

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Mar. 8, 1930	Week ended Mar. 9, 1929	Week ended Mar. 8, 1930	Week ended Mar. 9, 1929	Week ended Mar. 8, 1930	Week ended Mar. 9, 1929	Week ended Mar. 8, 1930	Week ended Mar. 9, 1929
West South Central States:								
Arkansas.....	20	7	118	267	8	96	4	3
Louisiana.....	25	29	51	55	69	56	5	3
Oklahoma ¹	18	18	80	313	85	38	3	7
Texas.....	51	55	77	400	192	577	2	1
Mountain States:								
Montana.....	2	5	-----	2	31	149	0	3
Idaho.....	1	1	-----	1	38	11	0	2
Wyoming.....	3	1	-----	4	12	3	2	0
Colorado.....	13	12	-----	4	256	16	5	13
New Mexico.....	4	1	2	-----	101	11	2	7
Arizona.....	5	6	48	-----	5	-----	7	9
Utah ¹	3	3	4	11	139	-----	5	20
Pacific States:								
Washington.....	5	5	2	16	243	76	2	8
Oregon.....	1	14	60	136	57	271	2	1
California.....	52	41	52	155	1,514	58	5	21
Division and State	Polioomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Mar. 8, 1930	Week ended Mar. 9, 1929	Week ended Mar. 8, 1930	Week ended Mar. 9, 1929	Week ended Mar. 8, 1930	Week ended Mar. 9, 1929	Week ended Mar. 8, 1930	Week ended Mar. 9, 1929
New England States:								
Maine.....	0	0	37	17	0	5	0	0
New Hampshire.....	0	0	13	31	0	0	0	0
Vermont.....	0	0	5	8	5	4	0	0
Massachusetts.....	0	1	284	283	0	0	2	4
Rhode Island.....	0	0	26	19	0	0	0	1
Connecticut.....	0	0	163	55	0	0	0	2
Middle Atlantic States:								
New York.....	1	2	559	567	1	13	9	22
New Jersey.....	1	0	290	183	0	0	3	2
Pennsylvania.....	2	1	557	508	2	1	17	9
East North Central States:								
Ohio.....	2	0	328	283	240	28	11	5
Indiana.....	0	1	212	312	160	108	4	0
Illinois.....	3	1	612	570	97	147	2	0
Michigan.....	0	1	363	414	63	58	0	2
Wisconsin.....	0	1	208	213	31	7	0	3
West North Central States:								
Minnesota.....	0	0	145	146	15	4	6	1
Iowa.....	0	0	87	219	96	58	3	3
Missouri.....	1	1	108	106	51	49	4	4
North Dakota.....	0	0	42	34	12	0	1	0
South Dakota.....	0	0	15	34	63	17	0	0
Nebraska.....	0	1	71	128	35	43	0	2
Kansas.....	0	0	113	204	68	68	1	5
South Atlantic States:								
Delaware.....	0	1	15	8	0	0	0	0
Maryland ¹	0	0	82	60	0	1	4	7
District of Columbia.....	0	0	11	31	0	0	0	0
West Virginia.....	0	0	30	21	26	9	45	5
North Carolina.....	0	0	52	27	20	20	2	3
South Carolina.....	0	0	12	14	1	2	6	3
Georgia.....	0	0	18	13	0	18	7	0
Florida.....	2	1	6	8	0	0	3	7
East South Central States:								
Kentucky.....	0	0	70	58	87	19	1	1
Tennessee.....	0	0	127	38	67	1	4	5
Alabama.....	0	0	28	14	8	3	7	2
Mississippi.....	0	0	20	13	1	0	6	7
West South Central States:								
Arkansas.....	0	0	37	21	15	62	1	3
Louisiana.....	0	0	18	55	3	2	17	2
Oklahoma ¹	0	0	27	42	93	138	16	4
Texas.....	2	1	104	74	350	140	9	25

¹ Week ended Friday.² Figures for 1930 are exclusive of Oklahoma City and Tulsa.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended March 8, 1930, and March 9, 1929—Continued

Division and State	Pollomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Mar. 8, 1930	Week ended Mar. 9, 1929	Week ended Mar. 8, 1930	Week ended Mar. 9, 1929	Week ended Mar. 8, 1930	Week ended Mar. 9, 1929	Week ended Mar. 8, 1930	Week ended Mar. 9, 1929
Mountain States:								
Montana.....	0	0	40	35	20	12	4	1
Idaho.....	0	0	5	10	9	5	0	0
Wyoming.....	0	0	11	30	10	3	0	0
Colorado.....	0	3	20	33	26	18	3	2
New Mexico.....	0	0	4	19	1	1	0	2
Arizona.....	1	1	20	8	29	20	0	2
Utah ¹	0	0	7	8	0	5	0	0
Pacific States:								
Washington.....	0	2	70	32	74	65	0	3
Oregon.....	1	1	40	64	20	46	1	0
California.....	3	0	207	497	53	75	7	10

¹ Week ended Friday.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Men- gococ- cus menin- gitis	Diph- theria	Influ- enza	Ma- laria	Mea- sles	Pella- gra	Polio- mye- litis	Scarlet fever	Small- pox	Ty- phoid fever
<i>January, 1930</i>										
District of Columbia	1	70	8	-----	12	-----	0	83	0	1
Kansas.....	10	84	50	-----	970	-----	3	619	273	7
<i>February, 1930</i>										
Arizona.....	23	33	48	2	20	-----	0	58	93	13
Connecticut.....	7	87	36	-----	87	-----	1	499	0	2
District of Columbia	2	64	3	-----	48	1	1	83	0	5
Indiana.....	79	146	68	-----	256	-----	1	985	809	13
Nebraska.....	25	71	27	-----	2,459	-----	0	418	236	2
Tennessee.....	62	42	854	8	695	3	3	151	84	13

<i>January, 1930</i>		<i>February, 1930</i>	
Actinomycosis:	Cases	Trachoma:	Cases
Kansas.....	1	Kansas.....	2
Chicken pox:		Undulant fever:	
District of Columbia.....	119	Kansas.....	2
Kansas.....	666	Vincent's angina:	
German measles:		Kansas.....	4
Kansas.....	19	Whooping cough:	
Impetigo contagiosa:		District of Columbia.....	30
Kansas.....	1	Kansas.....	271
Lethargic encephalitis:			
Kansas.....	1	<i>February, 1930</i>	
Mumps:		Chicken pox:	
Kansas.....	392	Arizona.....	74
Psittacosis.		Connecticut.....	579
Kansas.....	2	District of Columbia.....	99
Scabies:		Indiana.....	379
Kansas.....	8	Nebraska.....	259
Septic sore throat:		Tennessee.....	134
Kansas.....	1	Conjunctivitis (infectious):	
		Connecticut.....	3

	Cases		Cases
Dysentery:		Septic sore throat:	
Arizona.....	1	Connecticut.....	2
Tennessee.....	2	Nebraska.....	83
German measles:		Tennessee.....	6
Connecticut.....	159	Trachoma:	
Lead poisoning:		Arizona.....	24
Connecticut.....	2	Tennessee.....	13
Lethargic encephalitis:		Tularaemia:	
Connecticut.....	2	Tennessee.....	3
District of Columbia.....	1	Undulant fever:	
Nebraska.....	2	Indiana.....	1
Mumps:		Tennessee.....	1
Arizona.....	233	Vincent's angina:	
Connecticut.....	160	Tennessee.....	1
Indiana.....	38	Whooping cough:	
Nebraska.....	122	Arizona.....	39
Tennessee.....	32	Connecticut.....	222
Ophthalmia neonatorum:		District of Columbia.....	29
Connecticut.....	1	Indiana.....	125
Rabies in animals:		Nebraska.....	63
Connecticut.....	7	Tennessee.....	109

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 96 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 31,770,000. The estimated population of the 89 cities reporting deaths is more than 30,180,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended March 1, 1930, and March 2, 1929

	1930	1929	Estimated expectancy
<i>Cases reported</i>			
Diphtheria:			
46 States.....	1, 419	1, 574	-----
96 cities.....	654	733	924
Measles:			
45 States.....	13, 374	12, 522	-----
96 cities.....	3, 338	3, 475	-----
Meningococcus meningitis:			
46 States.....	365	303	-----
96 cities.....	155	174	-----
Polio-myelitis:			
47 States.....	20	15	-----
Scarlet fever:			
46 States.....	5, 910	5, 612	-----
96 cities.....	2, 235	1, 804	1, 575
Smallpox:			
46 States.....	1, 715	1, 030	-----
96 cities.....	190	99	84
Typhoid fever:			
46 States.....	174	212	-----
96 cities.....	50	22	32
<i>Deaths reported</i>			
Influenza and pneumonia:			
89 cities.....	1, 261	1, 487	-----
Smallpox:			
89 cities.....	0	0	-----

City reports for week ended March 1, 1930

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during non-epidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1921 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND								
Maine:								
Portland.....	13	1	0	2	0	0	15	3
New Hampshire:								
Concord.....	0	0	2	-----	0	3	0	2
Nashua.....	0	0	0	-----	0	1	0	0
Vermont:								
Barre.....	1	0	0	-----	0	1	0	0
Burlington.....	0	1	0	-----	0	0	0	1
Massachusetts:								
Boston.....	61	44	26	1	0	141	95	38
Fall River.....	12	4	3	-----	0	1	3	4
Springfield.....	9	4	4	-----	0	0	7	5
Worcester.....	8	3	1	-----	0	61	0	3
Rhode Island								
Pawtucket.....	15	2	0	-----	0	1	0	1
Providence.....	3	9	4	-----	0	0	0	13
Connecticut:								
Bridgeport.....	4	7	2	2	2	0	0	8
Hartford.....	6	6	7	-----	1	1	0	12
New Haven.....	62	1	1	-----	2	0	9	7
MIDDLE ATLANTIC								
New York								
Buffalo.....	21	13	8	-----	1	2	3	30
New York.....	373	223	131	43	18	283	200	289
Rochester.....	25	8	3	-----	0	18	1	5
Syracuse.....	42	4	0	-----	0	1	80	7
New Jersey:								
Camden.....	8	5	9	-----	0	0	0	9
Newark.....	56	15	33	0	0	201	11	16
Trenton.....	10	3	2	-----	1	21	0	11
Pennsylvania:								
Philadelphia.....	102	71	22	14	9	80	65	69
Pittsburgh.....	42	21	17	1	7	156	18	44
Reading.....	29	3	3	-----	0	0	3	2
Scranton.....	4	4	1	-----	0	0	0	0
EAST NORTH CENTRAL								
Ohio:								
Cincinnati.....	16	9	2	1	1	12	1	24
Cleveland.....	143	29	13	23	4	4	20	31
Columbus.....	21	4	2	5	3	47	1	11
Toledo.....	33	7	3	1	1	309	20	6
Indiana:								
Fort Wayne.....	1	3	1	-----	0	0	0	3
Indianapolis.....	18	7	1	-----	0	11	5	13
South Bend.....	-----	2	-----	-----	-----	-----	-----	-----
Terre Haute.....	1	1	0	-----	0	0	0	3
Illinois:								
Chicago.....	173	99	123	15	10	30	57	115
Springfield.....	24	0	0	1	0	5	1	3

City reports for week ended March 1, 1930—Continued

Division, State, and city	Chick- en pox, cases re- ported	Diphtheria		Influenza		Meas- les, cases re- ported	Mumps, cases re- ported	Pneu- monia, deaths re- ported
		Cases, esti- mated expect- ancy	Cases re- ported	Cases re- ported	Deaths re- ported			
EAST NORTH CEN- TRAL—continued								
Michigan:								
Detroit.....	95	53	44	9	4	410	64	56
Flint.....	3	3	1	—	0	4	1	3
Grand Rapids ..	2	2	0	—	0	0	0	4
Wisconsin:								
Kenosha.....	6	2	0	—	0	1	0	0
Madison.....	1	1	0	—	—	85	—	0
Milwaukee.....	175	17	10	3	3	8	50	19
Racine.....	5	2	0	—	0	0	1	0
Superior.....	5	0	0	—	0	23	0	0
WEST NORTH CENTRAL								
Minnesota:								
Duluth.....	7	0	0	—	0	76	0	4
Minneapolis ..	40	15	9	—	1	34	55	10
St. Paul.....	16	10	1	—	2	10	14	10
Iowa:								
Davenport.....	0	0	1	—	—	16	1	—
Des Moines.....	4	2	1	—	—	66	2	—
Sioux City.....	5	0	0	—	—	24	4	—
Waterloo.....	20	0	0	—	—	149	2	—
Missouri:								
Kansas City.....	36	6	5	—	1	9	2	17
St. Joseph.....	4	1	2	—	0	0	0	3
St. Louis.....	30	44	34	2	1	4	16	—
North Dakota:								
Fargo.....	9	0	0	—	0	0	12	0
Grand Forks.....	0	0	0	—	—	0	0	—
South Dakota:								
Aberdeen.....	5	0	0	—	—	0	0	—
Sioux Falls.....	0	0	0	—	—	9	0	—
Nebraska:								
Omaha.....	16	4	9	—	0	62	2	0
Kansas:								
Topeka.....	23	1	2	2	0	89	9	0
Wichita.....	30	3	0	—	0	28	1	2
SOUTH ATLANTIC								
Delaware:								
Wilmington.....	2	2	1	—	0	0	0	3
Maryland:								
Baltimore.....	133	25	18	27	3	6	8	45
Cumberland.....	0	0	0	1	0	0	0	2
Frederick.....	0	0	0	—	0	0	0	0
District of Columbia:								
Washington.....	30	15	5	2	2	21	0	7
Virginia:								
Lynchburg.....	6	1	0	—	0	4	11	2
Norfolk.....	15	1	4	—	—	2	34	—
Richmond.....	5	3	4	—	0	1	3	10
Roanoke.....	3	1	4	—	1	14	0	5
West Virginia:								
Charleston.....	18	0	1	2	0	3	1	2
Wheeling.....	4	1	0	—	1	0	0	5
North Carolina:								
Raleigh.....	15	1	0	—	1	0	0	1
Wilmington.....	14	0	1	—	0	0	0	1
Winston-Salem.....	0	1	1	—	0	0	4	4
South Carolina:								
Charleston.....	2	0	4	56	0	0	5	7
Columbia.....	9	1	0	—	0	0	2	11
Georgia:								
Atlanta.....	14	4	5	34	5	1	20	12
Brunswick.....	0	0	0	—	0	0	0	0
Savannah.....	0	1	0	8	0	1	1	1
Florida:								
Miami.....	4	2	0	—	0	3	7	1
St. Petersburg.....	—	0	—	—	0	—	—	6
Tampa.....	14	2	4	1	1	23	16	0

City reports for week ended March 1, 1930—Continued

Division, State, and city	Chick- en pox, cases re- ported	Diphtheria		Influenza		Meas- les, cases re- ported	Mumps, cases re- ported	Pneu- monia, deaths re- ported
		Cases, esti- mated expect- ancy	Cases re- ported	Cases re- ported	Deaths re- ported			
EAST SOUTH CENTRAL								
Kentucky:								
Covington.....	2	0	0	-----	0	1	0	3
Tennessee:								
Memphis.....	16	4	3	-----	1	0	25	6
Nashville.....	2	1	2	-----	2	4	1	5
Alabama:								
Birmingham.....	5	1	2	17	5	2	0	12
Mobile.....	2	0	0	4	0	39	0	1
Montgomery.....	5	1	2	5	-----	80	0	-----
WEST SOUTH CEN- TRAL								
Arkansas:								
Fort Smith.....	2	1	0	-----	-----	0	0	-----
Little Rock.....	5	0	0	-----	1	0	0	7
Louisiana:								
New Orleans ..	5	13	11	10	11	68	0	11
Shreveport.....	5	1	0	-----	0	0	3	7
Oklahoma:								
Tulsa.....	9	1	2	-----	-----	240	1	-----
Texas:								
Dallas.....	13	5	11	6	3	129	2	8
Fort Worth.....	14	3	2	-----	1	0	0	4
Galveston.....	0	1	0	-----	0	0	0	3
Houston.....	2	4	5	-----	0	1	0	7
San Antonio.....	4	3	2	-----	3	4	0	9
MOUNTAIN								
Montana:								
Billings.....	0	0	0	-----	1	0	2	3
Great Falls.....	3	1	0	-----	0	0	22	2
Helena.....	0	1	0	-----	0	0	21	0
Missoula.....	0	0	0	-----	0	1	0	1
Idaho:								
Boise.....	0	0	0	-----	0	0	0	0
Colorado:								
Denver.....	-----	10	-----	-----	-----	-----	-----	-----
Pueblo.....	6	0	0	-----	0	0	35	2
New Mexico:								
Albuquerque.....	9	0	0	2	0	4	9	0
Arizona:								
Phoenix.....	0	0	0	-----	0	5	3	5
Utah:								
Salt Lake City.....	21	2	0	-----	1	116	11	3
Nevada:								
Reno.....	0	0	0	-----	0	0	0	2
PACIFIC								
Washington:								
Seattle.....	54	5	2	-----	-----	99	74	-----
Spokane.....	33	2	4	-----	-----	0	0	-----
Tacoma.....	26	1	0	0	0	28	0	1
Oregon:								
Portland.....	25	7	1	3	1	8	11	11
Salem.....	5	0	0	-----	0	0	6	0
California:								
Los Angeles.....	114	38	12	27	1	207	64	12
Sacramento.....	11	2	5	-----	0	2	38	4
San Francisco.....	57	17	8	3	3	472	89	8

City reports for week ended March 1, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
NEW ENGLAND											
Maine:											
Portland	4	8	0	0	0	1	1	0	0	0	27
New Hampshire:											
Concord	1	1	0	0	0	1	0	0	0	0	9
Nashua	2	1	0	0	0	0	0	0	0	6	-----
Vermont:											
Barre	1	0	0	0	0	1	0	0	0	0	2
Burlington	3	0	0	0	0	0	0	0	0	0	12
Massachusetts:											
Boston	84	80	0	0	0	10	2	0	0	57	245
Fall River	4	3	0	0	0	5	1	0	0	15	33
Springfield	9	11	0	0	0	1	0	0	0	12	37
Worcester	10	11	0	0	0	1	0	0	0	12	66
Rhode Island:											
Pawtucket	2	2	0	0	0	0	0	0	0	0	25
Providence	12	11	0	0	0	2	0	0	1	24	60
Connecticut:											
Bridgeport	12	18	0	0	0	1	0	0	0	0	40
Hartford	6	7	0	0	0	4	0	0	0	7	69
New Haven	10	14	0	0	0	0	0	0	0	2	45
MIDDLE ATLANTIC											
New York:											
Buffalo	29	37	0	0	0	13	0	0	0	20	188
New York	344	305	0	0	0	116	7	8	2	64	1,732
Rochester	11	15	0	0	0	1	1	0	0	1	79
Syracuse	13	47	0	0	0	3	0	0	0	56	62
New Jersey:											
Camden	6	7	0	0	0	0	0	0	0	1	32
Newark	42	54	0	0	0	14	0	0	0	29	145
Trenton	5	11	0	0	0	3	1	0	0	1	65
Pennsylvania:											
Philadelphia	95	181	0	0	0	50	2	0	0	30	551
Pittsburgh	35	19	0	0	0	8	0	0	0	46	208
Reading	8	3	0	0	0	1	0	0	0	20	33
Scranton	3	5	0	0	0	0	0	0	0	0	-----
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	22	41	1	4	0	11	0	0	0	8	172
Cleveland	52	74	0	1	0	7	0	0	0	68	218
Columbus	10	7	1	7	0	8	0	0	0	2	116
Toledo	13	5	1	5	0	8	1	3	1	8	86
Indiana:											
Fort Wayne	5	2	0	28	0	0	1	0	0	1	31
Indianapolis	13	17	10	7	0	3	0	0	0	2	-----
South Bend	2	0	0	0	0	0	0	0	0	0	-----
Terre Haute	3	5	2	0	0	0	0	0	0	0	24
Illinois:											
Chicago	138	399	3	6	0	49	2	1	0	81	831
Springfield	4	2	1	0	0	2	1	0	0	9	29
Michigan:											
Detroit	117	174	3	5	0	26	1	0	0	52	352
Flint	13	16	1	4	0	0	0	0	0	5	42
Grand Rapids	12	14	1	0	0	0	0	0	0	0	42
Wisconsin:											
Kenosha	3	12	0	0	0	0	0	0	0	13	21
Madison	4	12	0	0	0	0	0	0	0	15	-----
Milwaukee	40	40	1	1	0	6	1	0	0	42	131
Racine	4	6	1	0	0	2	0	0	0	9	25
Superior	4	2	0	0	0	0	0	0	0	0	0
WEST NORTH CENTRAL											
Minnesota:											
Duluth	10	2	0	0	0	2	0	0	0	2	18
Minneapolis	62	18	3	0	0	6	0	0	0	8	130
St. Paul	34	12	1	0	0	2	0	0	0	33	65
Iowa:											
Davenport	2	0	1	20	-----	-----	0	0	-----	0	-----
Des Moines	9	22	1	9	-----	-----	0	0	-----	1	20
Sioux City	1	5	0	1	-----	-----	0	0	-----	2	-----
Waterloo	2	1	1	19	-----	-----	0	0	-----	3	-----

City reports for week ended March 1, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culosis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
WEST NORTH CENTRAL—contd.											
Missouri:											
Kansas City...	19	42	2	0	0	10	0	0	0	22	138
St. Joseph.....	2	8	0	4	0	0	0	0	0	0	26
St. Louis.....	42	32	2	11	0	15	1	3	0	5	238
North Dakota:											
Fargo.....	1	7	0	0	0	0	0	0	0	8	13
Grand Forks....	1	4	0	7	—	—	0	0	—	0	—
South Dakota:											
Aberdeen.....	0	0	0	0	—	—	0	0	—	2	—
Sioux Falls....	3	1	0	3	—	—	0	0	—	0	10
Nebraska:											
Omaha.....	4	11	2	6	0	0	0	0	0	0	—
Kansas:											
Topeka.....	2	8	0	1	0	0	0	0	0	16	15
Wichita.....	4	30	2	5	0	1	0	0	0	6	27
SOUTH ATLANTIC											
Delaware:											
Wilmington....	5	7	0	0	0	0	0	0	0	1	33
Maryland:											
Baltimore.....	34	64	0	0	0	25	0	0	0	27	230
Cumberland.....	1	0	0	0	0	1	0	0	0	0	17
Frederick.....	0	1	0	0	0	0	0	0	0	0	3
District of Colum- bia:											
Washington....	20	24	1	0	0	11	1	1	0	4	138
Virginia:											
Lynchburg.....	1	4	0	0	0	0	0	0	0	7	17
Norfolk.....	2	1	0	1	0	0	0	0	0	6	—
Richmond.....	4	10	0	0	0	5	0	0	0	0	51
Roanoke.....	1	0	0	0	0	1	0	0	0	6	20
West Virginia:											
Charleston.....	0	0	1	0	0	1	0	125	2	5	19
Wheeling.....	2	1	0	0	0	1	0	0	0	2	25
North Carolina:											
Raleigh.....	1	2	1	1	0	0	0	0	0	5	11
Wilmington....	0	2	0	0	0	0	0	0	0	5	16
Winston-Salem..	1	0	1	0	0	1	0	0	0	2	9
South Carolina:											
Charleston.....	0	0	0	0	0	1	0	0	0	0	16
Columbia.....	0	0	1	0	0	0	0	0	0	9	24
Georgia:											
Atlanta.....	5	9	4	0	0	9	0	0	0	0	112
Brunswick.....	0	0	0	0	0	1	0	0	0	0	3
Savannah.....	0	3	1	0	0	2	0	2	0	0	34
Florida:											
Miami.....	1	1	0	0	0	0	1	1	0	0	29
St. Petersburg..	0	—	0	—	0	0	0	—	0	—	31
Tampa.....	1	2	0	0	0	1	1	2	0	0	23
EAST SOUTH CENTRAL											
Kentucky:											
Covington.....	2	3	0	0	0	1	0	0	0	0	21
Tennessee:											
Memphis.....	8	18	1	0	0	6	1	2	0	4	87
Nashville.....	3	3	0	1	0	5	1	0	0	3	41
Alabama:											
Birmingham....	3	4	5	0	0	5	0	3	0	1	84
Mobile.....	0	1	1	0	0	1	0	0	1	1	18
Montgomery....	0	0	0	0	—	—	0	0	—	0	—
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith.....	0	0	0	0	—	—	0	0	—	0	—
Little Rock....	1	3	0	3	0	3	0	0	0	3	—
Louisiana:											
New Orleans....	7	18	1	0	0	7	2	0	0	1	164
Shreveport.....	1	0	1	0	0	2	1	0	0	1	33
Oklahoma:											
Tulsa.....	2	1	1	1	—	—	0	0	—	10	—

16 cases nonresidents.

City reports for week ended March 1, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
WEST SOUTH CENTRAL—contd.											
Texas:											
Dallas.....	4	6	4	0	0	4	0	0	0	0	57
Fort Worth.....	0	7	3	1	0	1	0	0	0	0	42
Galveston.....	0	0	0	0	0	0	0	0	0	0	16
Houston.....	1	4	3	16	0	8	0	0	0	0	85
San Antonio.....	2	0	0	13	0	15	0	0	0	0	74
MOUNTAIN											
Montana:											
Billings.....	1	2	0	0	0	0	0	0	0	0	6
Great Falls.....	2	28	1	0	0	0	0	0	0	0	14
Helena.....	0	0	0	0	0	0	0	0	0	4	6
Missoula.....	1	1	1	0	0	0	0	0	0	0	5
Idaho:											
Boise.....	0	0	0	0	0	0	0	0	0	3	2
Colorado:											
Denver.....	14	—	0	—	—	0	—	—	—	—	—
Pueblo.....	1	0	0	2	0	0	0	0	0	0	13
New Mexico:											
Albuquerque.....	1	0	0	0	0	3	0	0	0	0	11
Arizona:											
Phoenix.....	0	2	0	8	0	4	0	0	0	0	23
Utah:											
Salt Lake City.....	4	8	1	1	0	1	0	0	0	28	42
Nevada:											
Reno.....	0	1	0	0	0	0	0	0	0	0	6
PACIFIC											
Washington:											
Seattle.....	10	34	3	9	—	—	1	0	—	13	—
Spokane.....	7	2	9	21	—	—	0	3	—	14	—
Tacoma.....	2	2	3	4	0	0	0	0	0	5	29
Oregon:											
Portland.....	7	6	14	9	0	3	0	0	0	6	70
Salem.....	1	0	1	1	0	0	0	0	0	5	—
California:											
Los Angeles.....	39	86	2	2	0	28	1	0	2	43	291
Sacramento.....	2	9	1	3	0	2	0	0	0	1	32
San Francisco.....	25	41	1	4	0	11	1	0	0	4	194

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Maine:									
Portland.....	1	0	0	1	0	0	0	0	0
Massachusetts:									
Boston.....	2	3	1	0	0	0	1	0	0
Connecticut:									
Hartford.....	1	0	0	0	0	0	0	0	0
New Haven.....	1	1	0	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
Buffalo.....	5	1	0	0	0	0	0	0	0
New York.....	23	7	3	1	0	0	1	0	0
Syracuse.....	0	1	0	1	0	0	0	0	0
New Jersey:									
Newark.....	5	1	0	0	0	0	0	0	0
Pennsylvania:									
Philadelphia.....	2	2	1	0	0	0	0	0	0
Pittsburgh.....	4	1	0	0	0	0	0	0	0

City reports for week ended March 1, 1930—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Polio-myelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
EAST NORTH CENTRAL									
Ohio:									
Cincinnati.....	0	1	0	0	0	0	0	0	0
Cleveland.....	6	0	1	2	0	0	0	0	0
Toledo.....	1	1	0	0	0	0	0	0	0
Indiana:									
Indianapolis.....	11	0	0	0	0	0	0	0	0
Terre Haute.....	2	0	0	0	0	0	0	0	0
Illinois:									
Chicago.....	6	2	0	0	0	0	0	0	0
Michigan:									
Detroit.....	24	18	1	0	0	0	0	0	0
Flint.....	1	0	0	0	0	0	0	0	0
Grand Rapids.....	0	1	0	0	0	0	0	0	0
Wisconsin:									
Milwaukee.....	1	1	0	0	0	0	0	0	0
Racine.....	1	1	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
Duluth.....	1	0	0	0	0	0	0	0	0
St. Paul.....	1	0	1	0	0	0	0	0	0
Iowa:									
Davenport.....	0	0	0	0	0	0	0	1	0
Missouri:									
Kansas City.....	4	7	0	0	0	0	0	0	0
St. Joseph.....	0	1	0	0	0	0	0	0	0
St. Louis.....	8	4	0	0	0	0	0	0	0
Nebraska:									
Omaha.....	2	0	0	0	0	0	0	0	0
Kansas:									
Wichita.....	1	0	0	0	0	0	0	0	0
SOUTH ATLANTIC									
Maryland:									
Baltimore.....	1	0	1	0	0	0	0	0	0
Virginia:									
Norfolk.....	1	0	0	0	0	0	0	0	0
Richmond.....	0	1	0	0	0	1	0	0	0
West Virginia:									
Wheeling.....	1	0	0	0	0	0	0	0	0
North Carolina:									
Wilmington.....	0	0	0	0	0	1	0	0	0
South Carolina:									
Charleston.....	0	0	0	0	5	0	0	0	0
Columbia.....	0	1	0	0	0	0	0	0	0
Georgia:									
Atlanta.....	11	3	0	0	0	1	0	0	0
Florida:									
Miami.....	0	0	0	0	0	1	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis.....	11	5	0	0	1	1	0	0	0
Nashville.....	1	0	0	0	0	0	0	0	0
Alabama:									
Birmingham.....	1	0	0	0	1	0	0	0	0
Mobile.....	0	0	0	0	0	1	0	0	0
WEST SOUTH CENTRAL									
Louisiana:									
New Orleans.....	1	1	0	0	0	0	0	0	0
Texas:									
Houston ¹	0	0	0	0	0	1	0	0	0
MOUNTAIN									
Montana:									
Great Falls.....	1	0	0	0	0	0	0	0	0
Arizona:									
Phoenix.....	0	1	0	0	0	1	0	0	0
Utah:									
Salt Lake City.....	8	1	0	0	0	0	0	0	0
PACIFIC									
Oregon:									
Portland.....	1	1	0	0	0	0	0	0	0
California:									
Los Angeles.....	2	1	0	0	0	0	0	0	0
Sacramento.....	2	1	0	0	0	0	0	0	0
San Francisco.....	2	0	0	0	0	0	0	0	0

¹ Nonresident.² Dengue; 1 death at Houston, Tex.

The following table gives the rates per 100,000 population for 98 cities for the 5-week period ended March 1, 1930, compared with those for a like period ended March 2, 1929. The population figures used in computing the rates are approximate estimates, authoritative figures for many of the cities not being available. The 98 cities reporting cases have an estimated aggregate population of more than 32,000,000. The 91 cities reporting deaths have more than 30,500,000 estimated population.

*Summary of weekly reports from cities, January 26 to March 1, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929*¹

DIPHTHERIA CASE RATES

	Week ended—									
	Feb. 1, 1930	Feb. 2, 1929	Feb. 8, 1930	Feb. 9, 1929	Feb. 15, 1930	Feb. 16, 1929	Feb. 22, 1930	Feb. 23, 1929	Mar. 1, 1930	Mar. 2, 1929
98 cities.....	116	109	195	117	197	121	93	118	107	121
New England.....	124	108	112	117	95	130	100	117	111	123
Middle Atlantic.....	103	133	97	141	83	147	87	139	109	140
East North Central.....	140	106	103	113	115	115	102	106	125	131
West North Central.....	76	90	94	146	104	150	93	131	118	135
South Atlantic.....	106	107	70	67	93	73	110	67	88	64
East South Central.....	94	68	81	82	58	82	108	68	61	55
West South Central.....	232	95	168	114	146	114	86	175	108	145
Mountain.....	34	70	34	78	0	44	69	44	0	61
Pacific.....	80	65	43	68	87	77	61	106	73	72

MEASLES CASE RATES

98 cities.....	284	274	329	252	421	404	456	456	548	578
New England.....	312	514	305	561	432	541	383	382	463	635
Middle Atlantic.....	153	93	186	129	224	114	267	140	364	158
East North Central.....	168	418	172	66	253	761	269	883	851	1,142
West North Central.....	416	770	695	1,193	793	983	759	1,253	920	1,555
South Atlantic.....	287	103	245	133	306	135	403	167	136	197
East South Central.....	61	7	81	14	357	41	681	0	850	62
West South Central.....	314	34	695	34	743	50	799	80	755	57
Mountain.....	386	697	479	1,841	808	1,019	747	923	2,004	697
Pacific.....	1,224	99	1,200	135	1,450	164	1,483	145	1,908	229

SCARLET FEVER CASE RATES

98 cities.....	298	232	327	240	312	277	301	261	367	296
New England.....	317	303	479	305	350	373	374	292	368	337
Middle Atlantic.....	252	190	274	186	246	223	255	202	325	230
East North Central.....	420	280	432	318	438	340	425	341	513	402
West North Central.....	277	306	332	312	324	360	321	373	334	321
South Atlantic.....	205	131	203	146	231	167	216	144	236	187
East South Central.....	162	157	216	240	222	260	169	185	196	219
West South Central.....	78	145	138	232	116	255	101	270	116	202
Mountain.....	403	61	411	113	599	87	300	113	685	215
Pacific.....	357	350	338	304	314	328	236	292	411	493

¹ The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimates as of July 1, 1930 and 1929, respectively.

² Portland, Me., Kansas City, Mo., and Denver, Colo., not included.

³ Birmingham, Ala., and Denver, Colo., not included.

⁴ South Bend, Ind., and Denver, Colo., not included.

⁵ Portland, Me., not included.

⁶ South Bend, Ind., not included.

⁷ Kansas City, Mo., not included.

⁸ Birmingham, Ala., not included.

⁹ Denver, Colo., not included.

Summary of weekly reports from cities, January 26 to March 1, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929—Continued

SMALLPOX CASE RATES

	Week ended—									
	Feb. 1, 1930	Feb. 2, 1929	Feb. 8, 1930	Feb. 9, 1929	Feb. 15, 1930	Feb. 16, 1929	Feb. 22, 1930	Feb. 23, 1929	Mar. 1, 1930	Mar. 2, 1929
98 cities.....	32	7	30	5	27	8	24	12	31	16
New England.....	0	0	2	0	7	0	0	0	0	2
Middle Atlantic.....	0	0	0	0	0	0	0	0	0	0
East North Central.....	39	10	34	8	33	15	20	15	40	24
West North Central.....	47	8	69	2	47	0	91	15	89	15
South Atlantic.....	5	11	4	0	5	2	2	4	2	7
East South Central.....	13	7	0	0	39	0	13	0	7	7
West South Central.....	78	27	101	50	105	23	56	95	120	107
Mountain.....	60	78	34	26	68	70	17	35	61	87
Pacific.....	177	7	140	7	104	24	118	10	102	24

TYPHOID FEVER CASE RATES

98 cities.....	5	4	4	5	5	5	5	4	8	4
New England.....	0	2	0	2	2	4	4	9	0	2
Middle Atlantic.....	5	4	3	4	6	4	7	4	4	2
East North Central.....	3	1	5	3	3	2	1	2	1	0
West North Central.....	4	6	2	2	9	12	2	6	6	8
South Atlantic.....	7	7	11	6	7	6	13	4	55	2
East South Central.....	7	0	20	7	10	14	7	7	34	14
West South Central.....	4	8	7	27	7	11	4	8	0	19
Mountain.....	9	0	0	9	0	0	9	0	0	9
Pacific.....	17	7	2	7	5	7	12	5	7	7

INFLUENZA DEATH RATES

91 cities.....	17	84	14	58	20	54	20	45	20	39
New England.....	2	141	5	90	4	50	16	40	11	20
Middle Atlantic.....	15	83	11	58	15	44	16	35	17	30
East North Central.....	12	48	13	28	18	36	16	83	16	31
West North Central.....	18	45	19	51	12	33	12	45	15	39
South Atlantic.....	11	114	11	92	20	60	20	69	26	67
East South Central.....	59	298	37	127	66	224	81	82	59	149
West South Central.....	88	168	64	102	73	152	73	133	69	86
Mountain.....	9	35	17	78	17	87	26	78	34	52
Pacific.....	3	41	9	41	21	41	3	38	12	31

PNEUMONIA DEATH RATES

91 cities.....	169	273	176	230	174	222	182	193	198	223
New England.....	177	507	151	384	177	303	221	233	213	273
Middle Atlantic.....	166	360	190	298	202	254	200	192	230	240
East North Central.....	129	170	139	133	129	183	153	170	180	180
West North Central.....	180	189	145	186	109	180	151	207	136	228
South Atlantic.....	218	268	193	240	196	243	203	238	215	255
East South Central.....	272	269	236	194	263	164	272	157	199	284
West South Central.....	314	191	291	191	278	211	188	250	199	207
Mountain.....	223	143	274	235	188	244	240	226	223	279
Pacific.....	114	113	160	129	132	123	83	129	77	148

1 Portland, Me., Kansas City, Mo., and Denver, Colo., not included.

2 Birmingham, Ala., and Denver, Colo., not included.

3 South Bend, Ind., and Denver, Colo., not included.

4 Portland, Me., not included.

5 South Bend, Ind., not included.

6 Kansas City, Mo., not included.

7 Birmingham, Ala., not included.

8 Denver, Colo., not included.

FOREIGN AND INSULAR

CANADA

Provinces — Communicable diseases — Week ended February 22, 1930.—The Department of Pensions and National Health of Canada reports cases of certain communicable diseases in Canada as follows:

Province	Cerebro-spinal fever	Influenza	Polio-myelitis	Smallpox
Prince Edward Island ¹				
Nova Scotia ¹				
New Brunswick.....	1			
Quebec.....	1			
Ontario.....		10		23
Manitoba ¹				
Saskatchewan.....				64
Alberta.....	1		1	1
British Columbia.....				4
Total.....	3	10	1	97

¹ No case of any disease included in the table was reported during the week.

Quebec Province—Communicable diseases—Week ended March 1, 1930.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended March 1, 1930, as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis.....	2	Mumps.....	204
Chicken pox.....	94	Scarlet fever.....	114
Diphtheria.....	50	Tuberculosis.....	38
German measles.....	11	Typhoid fever.....	26
Influenza.....	209	Whooping cough.....	115
Measles.....	161		

CHINA

Meningitis.—During the week ended February 22, 1930, 5 cases of meningitis with 5 deaths were reported in Hong Kong, China. One case was reported during the week ended March 1. In Canton, during the week ended March 1, 9 cases of meningitis with 7 deaths were reported.

[illegible]

13 deaths from bubonic plague were reported in Andalgalá, Catamarca Province, Argentina, from Feb. 5 to Mar. 1, 1930.
21 cases of plague with 8 deaths were reported Jan. 29, 1930, in the State of São Paulo, Brazil; 15 of these cases were in the city of São Paulo.

33 deaths from bubonic plague were reported in Andalgala, Catamarca Province, Argentina, from Feb. 8 to Mar. 1, 1930. 21 cases of plague with 8 deaths were reported Jan. 29, 1930, in the State of Sao Paulo, Brazil; 15 of these cases were in the city of Sao Paulo.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX

[C indicates cases; D, deaths; P, present]

Place	Week ended—									
	December, 1929		January, 1930				February, 1930			
	21	28	4	11	18	25	1	8	15	22
Algeria:										
Alegra:	1									
Constantine:										
Oran:						4	1	1		
Arabia: Aden:	38	3	1			4	1	1	1	
Bolivia: La Paz (see table below):	37	1								
Brazil:										
Pinto Alegre:	3	2	2							
Rio de Janeiro:										
British Borneo: Sarawak:										
British East Africa (see also table below):										
Tanganyika:										
British South Africa:	5	9	3	41	50		20			
Northern Rhodesia:		1		4	10		4			
Southern Rhodesia:									4	2
Canada:										
Alberta:										
Calgary:	4	4	1	12	22	5	2	7	2	8
Edmonton:	2		1							1
British Columbia—Vancouver:	1			12	11	4	2	7	2	8
Manitoba:	8	5	15	9	14	6	2	7	2	3
New Brunswick:				2	6	2	3		3	1
Ontario:	2		1							2
Fort William:	7	19	7	17	63	4	23	15	4	19
London:									13	12
Niagara Falls:				4						4
North Bay:										
Ottawa:		3	7	5	2				1	1
Sarnia:									5	1
Toronto:	1			1	4		4	3	1	3
Windsor:		3	1	1	2				2	
Princes Edward Island:	2			2						

Quebec.....	C	3	1	7	22	16				1	2			4		1	6		
Montreal.....	C															1			
Quebec.....	C	1	4		11	40		18		10	12	21	12			33	19	22	2
Saskatchewan.....	C	1								9	13	9							
Regina.....	C																		
Saskatoon.....	C		1	13	13			1								1			
Ceylon: Colombo.....	C																		
China:																			
Canton.....	C	2				4		1				4		4	1	1		2	
Chungking.....	C																		
Foochow.....	C	P	P	P	P	P	P	P	P	P	P	P	P	P	P				
Hong Kong.....	C	5	2	3	15	62		19		38	27	20	28			19	37	37	18
Manchuria—	C	4	2	3	13	53		12		16	29	16	28			7	37	37	15
Harbin.....	C	1		1	1	2					1					1			
Kwantung—Dauren.....	C	2								1							1	3	
Nanking.....	C																		
Shanghai.....	C	P	P							P	P	P	P	P	P				
Foreigners only.....	C			2	4	5		2		2	1	2	2			1	1	1	
Including natives.....	C				1	2		2		2		1	1			1			
Swatow.....	C																		
Tientsin.....	C	2	2	3	1	4		2											
Chosen (see table below).	C																		
Colombia:																			
Barranquilla.....	C		4	15	50	56		9			1	2	2						100
Buenaventura.....	C					1													
Dutch East Indies:	C																		
Belawan Del.....	C	1	1		4	1		1											
Borneo—Samaranda.....	C	7		11	8														
Celebes—Makassar.....	C	4	12	136															
	C	3	5	1															
Java—	C																		
Batavia and West Java.....	C	10	35	31	11	37		5		2	5	5	11			2	1		
	C	5	7	6	7	8		3		2	4	1	5			2			
East Java and Madura.....	C	3			13	13													
	C	1			10														
Sangi Islands.....	C					106		17											
	C					6		3											
Sumatra—Medan.....	C	3	3		4	1		1								2			
Egypt:	C																		
Alexandria.....	C		5	1		5													
Suez.....	C																		
Great Britain:	C	502	406	490	643	994		105		232	248	335	414			313	354	374	322
England and Wales.....	C																		
Ashton under Lyne.....	C	3		2	1	6		3								1	1	1	3
Bradford.....	C		8	13	13	20		4		2	1		2					4	
Cardiff.....	C	1		1	1	1													
Leeds.....	C	1	2																
London.....	C	78	144	156	174	321		98		83	120	160	189			127	147	156	138

CHOLERA, PLAQUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

[illegible]

Fondicherry Province.....	C	12	8	5	19	7	2	7	6	5	13	1
India (Portuguese).....	D	7	8	3	16	7	1	7	6	5	10	1
Indo-China (see also table below):	C		1	1		1	2	3	1	3		
Fnompeah.....	C	3	1	1	2							
Saigon and Cholon.....	D	3	1									1
Iraq:	D											
Baghdad.....	C				9	20	4	6	5			2
Basra.....	C				3	10	1	1	3			1
Diyalah Liwa.....	C	13	4		63	46						
Kirkuk Liwa.....	C	12			18	7						1
Mosoul.....	C		21	16	90	70						
Ivory Coast (see table below).	D	81	68	24	26	18	53	27				8
Mexico (see also table below).	D	13	17	6	99	17	3					1
Acapulco.....	C	4	1									
Aguascalientes.....	D	4	6	8								
Coahuila.....	D	7			1							
Jalisco (State): Guadalajara.....	D	5	8	4	1	6	1	5	1	2	3	1
Juarez.....	D	3	P	10	6	11			3		4	
Mexico City and surrounding territory.....	D	21	7	8	9	19	2	15	2	3	9	
Morelos State. ¹	D	6	1	8	4				1	3	1	
Morocco (see table below).	C	141	110	39	18	5			1			
Netherlands: Rotterdam.....	D	1	7	5	1	1			1	1	2	1
Nigeria: Lagos.....	D			1					1	1	1	1
Panama.....	D	5	95	154	11							8
Persia (see table below).	C								40	2	18	
Philippine Islands: Sarangani and Balut Islands. ¹	D	2		1	2	4	3	1				
Poland.....	C											
Portugal:	C											
Lisbon.....	C	1	17		2	3	1		2			
Oporto.....	C			2								
Rumania.....	C											
Siam.....	D	32	23	1	33	7	3	6	27	9		
Somaliland, British: Boales.....	D	7	5	2	2	1	1	2	2	2	14	5
Somaliland, French: Tibriti.....	D	31	4	3	25	24	4	3	1	1	1	5
Somaliland, French: Tibriti.....	D	21	10	4	16	9						

¹ Newspaper reports of Feb. 4, 1930, show an epidemic of smallpox in Iouacatepec, Morelos State, Mexico, and vicinity, giving 600 deaths in preceding 2 weeks.

² On Feb. 1, 1930, 317 cases of smallpox with 103 deaths were reported to that date in the Sarangani and Balut Islands, Philippine Islands.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER--Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

[illegible]

Place	Aug. 1929	Sep- tem- ber, 1929	Octo- ber, 1929	No- vem- ber, 1929	De- cem- ber, 1929	Jan- uary, 1930	Place	Aug. 1929	Sep- tem- ber, 1929	Octo- ber, 1929	No- vem- ber, 1929	De- cem- ber, 1929	Jan- uary, 1930
Bolivia: La Paz.....	C		120	22			Morocco.....		10	3	12	41	84
British East Africa (see also table above):							Persia.....			62	57		P
Kenya.....	C	60		278		2		D			188	37	
Chosen.....	C	1		2			Turkey.....		1	41	100	136	
Mexico: Durango (see also table above).....	D	1	2	2	4	12		D		9	29	12	

TYPHUS FEVER

[C indicates cases; D, deaths; P, present]

Place	Week ended—													
	November, 1929				December, 1929				January, 1930					
	23	30	7	14	21	28	4	11	18	25	1	8	15	22
Algeria:														
Algiers.....														
Constantine Department.....														
Oran.....														
Bolivia:														
La Paz.....														
Pacajes Province—Calacoto Canton.....														
Brazil: Sao Paulo. ¹														
Bulgaria.....														
Sofia.....														
Chile:														
Talcahuano.....														
Valparaiso.....														
China: Tientsin.....														

¹ Press reports show that 10 deaths from typhus fever occurred in Sao Paulo, Brazil, from Nov. 3 to 30, 1929.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER—Continued

[C indicates cases; D, deaths; P, present]

Place	Week ended—														
	July 1929		Aug. 25-29, 1929	Sept. 22-26, 1929	Oct. 19-23, 1929	December, 1929					January, 1930			February, 1930	
	23	30	7	14	21	28	4	11	18	25	1	8	15	22	
Chosen (see table below).															
Czechoslovakia (see table below).															
Egypt:															
Alexandria.....		1	2												
Assuan.....							9								
Behnra Province.....							1								
Cairo.....	31	6	16	2			7		6	8					
Dakahlieh.....	4	2	4	1											
Port Said.....		3													
Suez.....	2	1													
Greece (see table below).															
Iraq: Baghdad Liwa.....								1							
Ireland (Irish Free State): Donegal County—Dunfanaghy.....								1							
Latvia (see table below).								1							
Lithuania (see table below).															
Mexico:															
Agua Calientes.....	1														
Mexico City, including municipalities in Federal District.....															
Marocco.....	11	14	9	3	1	1	2	4	2			3	3	2	
Pakistan.....	1	6		1		1	1	1	1			2	1	1	
Peru.....	6	5	5	4	1	1	3	1	1			7	2	7	
Peru: Arequipa (see table below).	23	5	3	2	1										
Poland.....	48	31	62	17	16	19	22		18	15	28	67	96	52	
Portugal: Oporto.....	7	4	3	3	2	3	4		2	1	1	5	7	8	

Place	August, 1929	September, 1929	October, 1929	November, 1929	December, 1929	January, 1930							
Rumania.....	.....	C	9	39	25	19	8	11	32	52	14	68	41
Tunisia.....	.....	D	1	4	5	2	2	1	1	9	1	4	8
Turkey (see table below).	.....	C	4		1	1						2	
Union of South Africa:													
Cape Province.....	.....	C	1	P	P	P	P	P	P	P	P	P	P
Natal.....	.....	C	P	P	2	P	P	P	P	P	P	P	P
Orange Free State.....	.....	C	P	P	P	P	P	P	P	P	P	P	P
Transvaal.....	.....	C	P	P	P	P	P	P	P	P	P	P	P
Yugoslavia (see table below).													
Chosen: Seoul.....	.....	.....	1	.....	1	.....	Peru: Arequipa.....	D	.....	.....	.....	1	1
Czechoslovakia.....	.....	.....	.....	3	.....	.....	Turkey.....	C	3	.....	.....	4	10
France.....	.....	.....	1	.....	1	.....	Yugoslavia.....	D	.....	.....	.....	1	1
Greece: Athens.....	6	3	7	.....	6	1	.....	D	7	.....	.....	.....	.....
Latvia.....	1	.....	.....	.....	2	.....	.....	D	2	.....	.....	.....	.....
Lithuania.....	1	3	6	4	5	2	.....	.....	.....	.....	.....	.....	.....
.....	1	1	1	1	1	.....	.....	.....	.....	.....	.....	.....	.....

YELLOW FEVER

During the month of September, 1929, cases of yellow fever were reported as follows. Netheroy, Brazil, 1 case; Rio de Janeiro, Brazil, 2 cases; Monrovia, Liberia, 1 case.

X

Place	Aug. 1929	Sep- tem- ber, 1929	Octo- ber, 1929	No- vem- ber, 1929	De- cem- ber, 1929	Jan- uary, 1930	Place	Aug. 1929	Sep- tem- ber, 1929	Octo- ber, 1929	No- vem- ber, 1929	De- cem- ber, 1929	Jan- uary, 1930
Bolivia: La Paz	C		120	22			Morocco			3	12	41	84
British East Africa (see also table above):							Persia			62	57		P
Kenya	C	60		278		2		D			158	87	
Chosen	C	1					Turkey	C	1	41	100	136	
Mexico: Durango (see also table above)	D	1						D			9	29	12
	D		2	2	4	12							

TYPHUS FEVER

[C indicates cases; D, deaths; P, present]

Place	Week ended—												
	November, 1929			December, 1929				January, 1930					
	23	30	7	14	21	28	4	11	18	25	1	8	15
Algeria:													
Algiers						1					2	1	
Constantine Department			1	2			1	13	1	2			
Oran				1				1	1	1			
Bolivia:													
La Paz						14							
Pacajes Province—Calacoto Canton													
Brazil: Sao Paulo. ¹													
Bulgaria													
			9	1								1	
Sofia			1										
Chile:													
Talcahuano											1		
Valparaiso													
China: Tientsin													

¹ Press reports show that 10 deaths from typhus fever occurred in Sao Paulo, Brazil, from Nov. 3 to 30, 1929.

Rumania.....	C	9	39	25	19	8	11	32	52	14	68	41			
Tunisia.....	D	1	4	5	2	1	1	1	1	1	4	8			
Turkey (see table below).	C	4		1	1						2				
Union of South Africa:															
Cape Province.....	C	1	P	P	P		P	P		P		P			
Natal.....	C	P	P	2	P		P	P		P		P			
Orange Free State.....	C	P	P	P	P		P	P		P		P			
Transvaal.....	C	P	P	P	P										
Yugoslavia (see table below).															

Place	August, 1929	Septem- ber, 1929	Octo- ber, 1929	Novem- ber, 1929	Decem- ber, 1929	January, 1930	Place	August, 1929	Septem- ber, 1929	Octo- ber, 1929	Novem- ber, 1929	Decem- ber, 1929	January, 1930
Chosen: Seoul.....		1	1		1		Peru: Arequipa.....		1	1			
Czechoslovakia.....		1	1	3	1		Turkey.....	3	4	10	2	4	2
France.....		1			1				1				
Greece: Athens.....	6	3	7		6	1	Yugoslavia.....	7		1		6	26
Latvia.....	1				2			2				1	3
Lithuania.....	7	3	6	4	5	2							
	1		1	1	1								

YELLOW FEVER

During the month of September, 1929, cases of yellow fever were reported as follows: Nictheroy, Brazil, 1 case; Rio de Janeiro, Brazil, 2 cases; Monrovia, Liberia, 1 case.

X

UNITED STATES TREASURY DEPARTMENT

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SPECIAL ARTICLE

Clinical Records of 65 Cases of Recovery from Leprosy



UNITED STATES
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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. R. C. WILLIAMS, *Chief of Division*

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PUBLIC HEALTH REPORTS

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NO. 13

RECOVERIES FROM LEPROSY

An Analysis of the Records of 65 Cases¹

By OSWALD E. DENNEY, *Surgeon (R), United States Public Health Service; Medical Officer in Charge the National Leper Home*; RALPH HOPKINS, M. D., *Professor of Dermatology, Tulane University of Louisiana School of Medicine, Attending Dermatologist, National Leper Home*; and FREDERICK A. JOHANSEN, M. D., *Acting Assistant Surgeon, United States Public Health Service, National Leper Home, Carville, La.*

From time immemorial leprosy has been considered an incurable disease, contributing almost invariably to a fatal termination. Until modern and quite recent times the Biblical injunction, "Cleanse the leper," has been accepted by many as referring to the spiritual rather than the physical cleansing of the leper. Half a century ago, the curing of a leper was so rare an occasion that a report of such evoked considerable discussion.

The discovery of the causative agent of leprosy by Armauer Hansen in 1871 and, later, improvement in the methods of detecting the organism have assisted leprologists in selecting, with a greater degree of accuracy, criteria by which cures might be determined.

It is recognized that cure, in so far as restoration of anatomical and physiological function is concerned, is impossible when mutilation has occurred in leprosy. It is obvious that the loss of members from spontaneous absorption of bone and other tissues (fig. 1), contraction of muscles and complete loss of sensation from destruction of motor and sensory nerves (fig. 2), extensive cicatrices from healed ulcers, blindness from opacities or destruction of the cornea (fig. 3) can not be cured; yet, in the last decade, considerable numbers of patients have been released from leprosia following the arrest of the progress of leprosy and the disappearance of the bacilli, and most of the objective and subjective symptoms.

In the last 10 years, 65 patients have been released from the National Leper Home, at Carville, La. (Fig. 5.) The records of these cases present information of some interest and are submitted in abbreviated form.

¹ Presented at the meeting of the American Association of Tropical Medicine, held in Miami, Fla., Nov. 20-22, 1930.

Editorial note: Between the time of the presentation of this paper and Jan. 23, 1930, 8 additional lepers were paroled.

Abstracts of Clinical Records

CASE 1-LLH-277

Condition on admission: White female, age 40, duration of leprosy two and one-half years. Nodular type, macule on nose and one on leg.

Progress in hospital: Gradual disappearance of symptoms over a period of four years.

Treatments: Chaulmoogra oil by mouth, average dose 50 gtt. t. i. d.

Sequelæ: No evidence of previous lesions.

Outcome: No recurrence after nine years.

CASE 2-LLH-261

Condition on admission: White female, age 45, duration eight years. Nodular type, patches on nose and legs.

Progress in hospital: Gradual disappearance of symptoms over a period of five years.

Treatments: Chaulmoogra oil by mouth, average dose 50 gtt. t. i. d.

Sequelæ: No evidence of former lesions.

Outcome: No recurrence after nine years.

CASE 3-LLH-213

Condition on admission: White female, age 37, duration of leprosy one and one-half years. Nodular type, active; discolored hands, nodular ear lobes, diffuse infiltration of entire face.

Progress in hospital: Gradual disappearance of symptoms over a period of six years.

Treatments: Chaulmoogra oil by mouth in doses averaging 60 gtt. t. i. d. and strychnine one-sixtieth gr. t. i. d.

Sequelæ: Numerous scars and pigmented spots at sites of former leprosy lesions.

Outcome: No recurrence after nine years.

CASE 4-65

Condition on admission: White female, age 30, leprosy of seven years' duration. Nodular type; general health good; brown spot on forehead, rash on both legs.

Progress in hospital: Improvement began soon after admittance, consistently continued.

Treatments: Chaulmoogra oil by mouth ranging in dose from 5 to 10 gtt. daily for three and one-half years.

Sequelæ: No evidence of lesions when discharged.

Outcome: No recurrence during succeeding eight years.

CASE 5-76

Condition on admission: White male, age 16, duration of leprosy 1 year. Mixed type; numerous nodules and anesthetic macules.

Progress in hospital: Progressively worse for four years, then became inactive; gradual improvement continued until paroled. Hospitalized 16 years.

Treatments: For several years no treatment, three years averaged 300 gtt. chaulmoogra oil by mouth daily; four years averaged 600 daily, a total of approximately 80 liters.

Sequelæ: Contractions of fingers and few scars from leprosy infiltrations.

Outcome: Eight years after parole, developed a trophic ulcer on sole of foot; healing promptly accomplished; no evidence of activation of leprosy.



FIGURE 1 —HANDS OF LEPER PAROLED AS RECOVERED. SHOWING LOSS OF ALL PHALANGES AND SOME DESTRUCTION OF METACARPALS (CASE 33 118)



FIGURE 2 —INCOMPLETE "CLAW HAND" OF PAROLED PATIENT, SHOWING ATROPHY OF INTEROSSEI MUSCLES OF LEFT HAND WITH COMPLETE LOSS OF SENSATION (CASE 26-54)



FIGURE 3.—PAROLED PATIENT TOTAL BLINDNESS, DOUBLE FACIAL PARALYSIS, AND SOME CICATRICAL TISSUE (CASE 31-160)



FIGURE 4.—PAROLED PATIENT. NO SEQUELAE OF LEPROSY (CASE 4-65)

CASE 6-61

Condition on admission: White male, age 65, duration more than five years. Mixed type, nodular symptoms predominating. Eight large circinate macules, the size of palm of hand, on chest, abdomen, back, and arms. Also one on right leg in popliteal space. Between large macular areas there are smaller macules, varying in size from a dime to a dollar. All lesions light brownish-red in color, with atrophic centers. Commencing contractions of all fingers both hands, one small ulcer on index finger.

Progress in hospital: Slow, consistent improvement during two years' stay in hospital.

Treatment: Ethyl esters of chaulmoogra oil, hypodermically, irregularly taken.

Sequelæ: Scars from old burns and a few depigmented spots.

Outcome: Died one year after discharge.

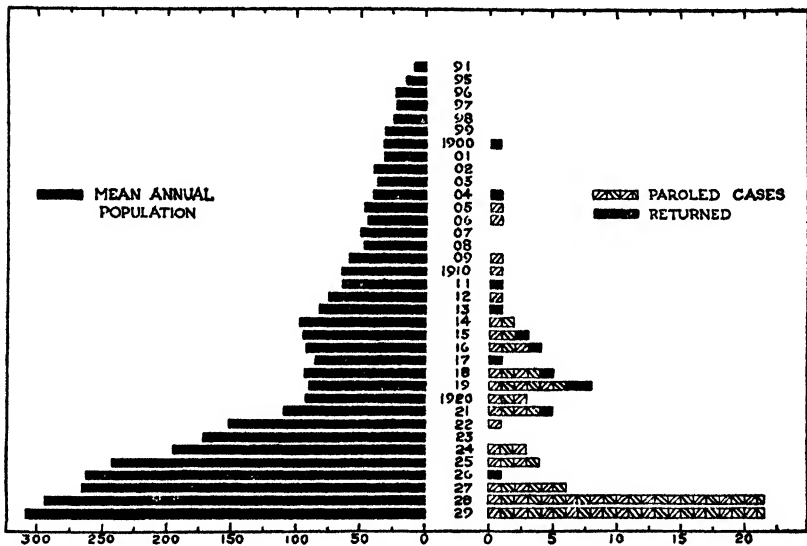


FIGURE 5—Mean annual population of the leprosy hospital since its establishment in 1894 and the numerical distribution of paroled and relapsed patients

CASE 7-88

Condition on admission: White female, age 64, duration of leprosy 8 years. Nodular type. Reddish brown pigmentation slightly raised covering face and forehead, spots of same character on arms.

Progress in hospital: Gradual improvement during six years in hospital.

Treatment: Chaulmoogra oil, 50 gtt. t. i. d. by mouth, irregularly.

Sequelæ: Face wrinkled from recession of leprous tumefaction, no other lesions.

Outcome: No recurrence in eight years.

CASE 8-109

Condition on admission: White male, age 31, duration of leprosy 15 years; antileprosy treatment already taken for eight years; no evidences of active leprosy.

Progress in hospital: Condition stationary during nine months in hospital.

Treatment: Ethyl esters of chaulmoogra oil total 144 cubic centimeters; small doses of chaulmoogra oil by mouth.

Sequelæ: Slight contraction of fingers.

Outcome: Returned after three years with symptoms of active leprosy; present condition approaching quiescence.

CASE 9-6

Condition on admission: White female, age 20, duration of leprosy one year. Nodular type. Small white macule on right shoulder and left arm. Infiltrated patch on face, several small nodules scattered over body. No anesthesia.

Progress in hospital: Frequent attacks of leprosy fever, gradual subsidence followed by consistent improvement, three and one-half years in hospital.

Treatment: Chaulmoogra oil orally, intermittently in doses of 10 to 30 gtt. t. i. d. for two years with approximate total of 2 liters.

Sequelæ: None.

Outcome: No recurrence for seven years; interstitial keratitis developing, possibly leprous.

CASE 10-30

Condition on admission: White female, age 46, duration of leprosy five years. Anesthetic type; well developed and nourished, general health good; raised reddish infiltration over both cheeks and extending from one side of face to the other, involving nose; small pigmented spot on right leg.

Progress in hospital: Uneventful improvement during eight years in hospital.

Treatment: Chaulmoogra oil by mouth irregularly, in doses ranging from 10 to 30 gtt. t. i. d.; total 8 liters.

Sequelæ: Slight thickening of skin of face at site of former lesions.

Outcome: No recurrence after five years.

CASE 11-203

Condition on admission: Brown male, age 22, duration of leprosy two years. Nodular type; small nodules over forehead, cheeks, and chin; both cheeks somewhat pigmented, few pigmented spots over chest.

Progress in hospital: Made rapid improvement during two and one-half years in hospital.

Treatment: Chaulmoogra oil by mouth irregularly of from 5 to 25 gtt. t. i. d.; total approximately $1\frac{1}{2}$ liters.

Sequelæ: Slight thickening of skin of face at site of old lesions.

Outcome: No recurrence after five years.

CASE 12-213

Condition on admission: White female, age 44, duration of leprosy four years. Mixed type; well developed and general physical condition good. Large reddened nodular area above left elbow, spot is anesthetic to heat and cold. Large area on left leg below knee is anesthetic to pain. Small reddish-brown spot on left thigh.

Progress in hospital: Very rapid progress toward recovery during two years in hospital. Two minor surgical operations performed.

Treatment: Ethyl esters of chaulmoogra oil in doses of from 1 to 5 cubic centimeters for 22 weeks, a total of 74 cubic centimeters; weekly injections 2 cubic centimeters for 35 weeks, a total of 70 cubic centimeters. Also chaulmoogra oil by mouth, 40 gtt. t. i. d., total 12 liters. Also took intravenous injections of mercurochrome 2 per cent over a period of 10 weeks, a total of 216 cubic centimeters.

Sequelæ: Considerable improvement in sensation, spots almost disappeared.

Outcome: No recurrence after five years.

CASE 13-43

Condition on admission: White female, age 63, well-developed and nourished, good general health, duration of leprosy over 10 years, anesthetic type. Diffuse brown pigment over lower half both legs. Depigmented patches on back and shoulders. Anesthetic to pain, heat, and cold below elbows, except finger tips, and below lower half both legs.

Progress in hospital: Slow improvement during six years in hospital.

Treatment: Small doses chaulmoogra oil by mouth irregularly since admission, a total of over four liters.

Sequelæ: Anesthesia improved, but present in some locations.

Outcome: No recurrence after four years

CASE 14-12

Condition on admission: White female, age 32, duration over 10 years. Anesthetic type. Face and hands red and swollen, and patient complained of cramps in fingers. Anesthetic to touch over ulnar aspect both forearms and below midhighs; to pain, heat and cold over entire extremities. Loss of hair of eyebrows and forearms. Contraction all toes of left foot.

Progress in hospital: Slow improvement during 11 years in hospital.

Treatment: Small doses chaulmoogra oil by mouth regularly, totaling more than five liters. Ultraviolet ray to sinus of left foot irregularly; also hydrotherapy.

Sequelæ: Anesthesia unchanged, general condition excellent.

Outcome: No recurrence for four years.

CASE 15-148

Condition on admission: White female, age 3, duration of leprosy over one year. Anesthetic type. Two small pale patches on buttocks only signs of leprosy presented.

Progress in hospital: Rapid progress during three and one-half years in hospital with complete disappearance of lesions

Treatment: Chaulmoogra oil by mouth irregularly; during entire stay in hospital took 150 cubic centimeters.

Sequelæ: None visible.

Outcome: No recurrence after four years

CASE 16-190

Condition on admission: White male, age 39, well developed and nourished and general health good; duration of leprosy more than 10 years. Mixed type; diffuse thickening posterior part humeral region around both wrists. Slightly pigmented patches over areas of entire body, apparently old leprotic patches disappearing. Sensation in both hands dull and absent in little finger of left hand. Heat and cold can not be distinguished in feet. Ulnar and popliteal nerves enlarged. Little finger left hand flexed, right toe drop.

Progress in hospital: Slow during three and one-half years in hospital. Terminal phalanx second toe of left foot removed.

Treatment: Chaulmoogra oil by mouth, 10 to 75 gtt. daily, a total of about 12 liters. Ethyl esters of chaulmoogra oil for six months, 2 cubic centimeters weekly, approximately 50 cubic centimeters.

Sequelæ: Deformities unchanged, sensation slightly improved.

Outcome: No recurrence, reported dead.

CASE 17-86

Condition on admission: White female, age 34, duration of leprosy seven years. Anesthetic type. Brown spots scattered over both arms and legs and

one of smaller size on left cheek. Anesthetic to pain, heat, and cold over ulnar surface of left forearm and all fingers of left hand and outer surface left leg. Sensation diminished over all spots.

Progress in hospital: Numerous intermittent attacks of neuritis in arms; gradual cessation of pain and some return of normal sensation during seven years' stay in hospital.

Treatment: Chaulmoogra oil by mouth regularly since admittance, approximate total 7 liters; also physiotherapy and hydrotherapy for neuritis.

Sequelæ: None visible.

Outcome: Recurrence after three years, readmission for further treatment as active nodular type.

CASE 18-291

Condition on admission: White female, age 58, well nourished and excellent physical condition, duration of leprosy three years. Mixed type. Small red patch on left knee and large patch on lower half of left leg. Anesthetic to touch over central portion of the patch on left leg; to pain, heat and cold on ulnar aspect right forearm, second, third, and fourth fingers and index finger left hand.

Progress in hospital: Slow improvement during three years in hospital.

Treatment: Chaulmoogra oil by mouth, approximate total 11 liters.

Sequelæ: Diminished sensation in spots originally affected.

Outcome: No recurrence after two years.

CASE 19-24

Condition on admission: White male, age 30, well developed and in good physical condition; duration of leprosy 1 year. Mixed type, anesthetic predominating. Small patch posterior to mid axillary line and lower border of ribs depigmented in center surrounded by circle of pigmented skin. Sensation to touch dulled in little and ring finger of both hands, also dulled sensation in both feet. Old evidence of leprotic macule on outer aspect of left arm. Both ulnar nerves enlarged.

Progress in hospital: Heriectomy in July, 1924. Periodically suffered intensely with neuritis in arms and legs up until about one and one-half years before discharge. Slow disappearance of symptoms during eight years' stay in hospital.

Treatment: Chaulmoogra oil by mouth from admittance, approximate total 15 liters. Palliative treatment with physiotherapy given for neuritis.

Sequelæ: Some anesthesia remains.

Outcome: No recurrence after two years.

CASE 20-7

Condition on admission: White female, age 30, duration of leprosy 1 year. Early anesthetic type. Brown patches on forehead and right leg. Anesthetic to pain on anterior surface left ankle and foot, also second and third toes. Sensation to heat and cold diminished on same area. Suffered periodically with neuritis and occasionally tubercles.

Progress in hospital: Marked improvement from tubercles and neuritis, slow improvement during 7 years in hospital.

Treatment: Fowler's solution irregularly, routinely in 1 gt. t. i. d. increasing 1 gt. each day until 15 gtt. were taken. Chaulmoogra oil by mouth, approximate total, 10 liters. Hydrotherapy and electrotherapy irregularly.

Sequelæ: Slight anesthesia remains.

Outcome: No recurrence after two years.

CASE 21-248

Condition on admission: White male, age 57, well developed and in excellent physical condition. Duration of leprosy one year. Both ulnar nerves enlarged. Thermal sensation not appreciated as acutely as normal over outer border of right wrist. Pigmentation over chest and more marked over left shoulder. Light brownish pigmentation over external surfaces of arms. Deeper pigmentation over both hands.

Progress in hospital: Became leonine in appearance. Had one attack of cerebral hemorrhage. Leprosy gradually subsided during seven years' stay in hospital.

Treatment: Chaulmoogra oil by mouth, total approximately 36 liters.

Sequelæ: No visible signs.

Outcome: Died soon after discharge, cause unknown.

CASE 22-328

Condition on admission: Male, Filipino, age 24, well developed and nourished, good general health. Mixed type, anesthetic predominating, duration of leprosy one year. Small patch on inner surface right leg and left forearm. Anesthesia over ulnar surface of left forearm and fourth finger. Ulnar nerves thickened, left ulnar nodular. Ear lobes slightly thickened.

Progress in hospital: Rapid improvement during three years' stay in hospital.

Treatment: Chaulmoogra oil by mouth regularly, approximate total 3 liters. Physiotherapy, exercise and massage.

Sequelæ: None visible.

Outcome: No recurrence for two years.

CASE 23-75

Condition on admission: White female, age 24, duration of leprosy eight years. Mixed type, nodular predominating. On admission weighed 100 pounds, was emaciated, undernourished, well advanced leper. All fingers on right hand contracted and ring and little finger left hand. Anesthesia both hands and forearms and lower half both legs. Small scattered areas of pigmented and depigmented skin over most of body. Many scars of old ulcers on legs and arms. Scattered areas or raised, reddened areas present representing active processes. Complete loss of eyebrows.

Progress in hospital: General improvement during last five years in hospital, gained in weight until she weighed 180 on discharge. At times, suffered with neuritis and tubercles. Total time in hospital 10½ years.

Treatment: Chaulmoogra oil by mouth since admittance, approximate total 5 liters. Massage, hydrotherapy, and exercises to hands and feet. Ethyl esters of chaulmoogra oil intramuscularly once weekly for three years, total about 150 cubic centimeters.

Sequelæ: Many scars from burns, hands still deformed, anesthesia unchanged.

Outcome: No recurrence after two years.

CASE 24-92

Condition on admission: White female, age 56, duration of leprosy 10 years. Mixed type. One nodule on right forearm. Anesthesia to pain throughout radial distribution of forearms and hands. Anesthesia of both feet and legs. Thermal sensation hands absent and diminished in both feet.

Progress in hospital: Suffered greatly at times with acute indigestion and gall stone colic. Slow improvement of leprosy during 16 years in hospital.

Treatment: Chaulmoogra oil in small doses by mouth since admission. Approximate total 4 liters. During 1921, took ethyl esters of chaulmoogra oil for 7

months in doses of one-half to 5 cubic centimeters once weekly but discontinued on account of severe pain and reactions. Total amount approximately 86 cubic centimeters; also physiotherapy irregularly.

Sequelæ: No evidence of former lesions, anesthesia unchanged.

Outcome: Died; no evidence of active leprosy found at autopsy.

Condition on admission: White female, age 32, duration of leprosy 12 years. Anesthetic type. A few small patches about face, one on each buttock, one on left ankle, also right ankle and leg. Dark spots covering most of thumb and forefinger of right hand and small one on knuckle of second finger left hand. Loss sensation in thumb and index finger right hand and in patch on left hand. Diminished sensation dorsal portion both feet, also to heat and cold. Ulnar nerve thickened.

Progress in hospital: Gradual cessation of leprous activity.

Treatment: Chaulmoogra oil by mouth, approximate total 10 liters. Hydrotherapy and physiotherapy irregularly during entire stay. Strychnine one-sixtieth grain t. i. d. intermittently; also Fowler's solution.

Sequelæ: No evidence of former lesions.

Outcome: No recurrence in one year.

CASE 26-51

Condition on admission: Negro male, age 29, well nourished and in good physical condition. Anesthetic type, duration of leprosy 10 years. Light colored depigmented patches on thighs and right arm. Anesthetic to pain, heat and cold below lower half of forearm on ulnar side, and wrist on radial side of both forearms and lower half both legs. Muscular atrophy left hand and thickening ulnar nerves; contraction fourth and fifth toes right foot.

Progress in hospital: Slow improvement during 11 years in hospital.

Treatment: No special treatment.

Sequelæ: Same as on admission.

Outcome: No recurrence for one year.

CASE 27-311

Condition on admission: Negro male, age 23; good general health; well developed and nourished. Duration of leprosy one year. Anesthetic type. Pigmented areas on both elbows, right upper arm and both forearms. Brown patches on both cheeks, left thigh, left leg, right leg and small spot in center of back. All pigmented areas are anesthetic, also right index finger and ulnar aspect of left forearm. Muscular atrophy marked in left hand. Both ulnar nerves thickened. Fourth and fifth fingers left hand contracted.

Progress in hospital: Uneventful, favorable progress during four years' stay in hospital.

Treatment: Chaulmoogra oil by mouth, approximate total 13 liters. Ethyl esters of chaulmoogra oil once weekly for two years, total 106 cubic centimeters. Hydrotherapy and electrotherapy.

Sequelæ: Atrophy of interosseous muscles and slight contraction two fingers left hand; otherwise no evidences of leprosy.

Outcome: No recurrence for one year.

CASE 28-17

Condition on admission: White female, age 57, duration of leprosy one year. Nodular type, small nodules scattered over face; no disturbance of sensation or any other signs of leprosy.

Progress in hospital: Slow improvement during 10 years in hospital.

Treatment: Took chaunmoogra oil regularly since admittance, total approximately 25 liters.

Sequelæ: None visible.

Outcome: No recurrence for one year.

CASE 29-82

Condition on admission: White male, age 28, well developed and nourished and in good general health. Mixed type, duration of leprosy two years; lepromata in right ear lobe. Anesthetic to pain, heat, and cold below elbow on ulnar side extending toward radial side to the hand, gradually extending to thumb of both sides and dorsal and lateral surface of both feet. Slight thickening of both ulnar nerves. Right ear lobe slightly pendulous.

Progress in hospital: Slow improvement during eight years in hospital.

Treatment: Chaulmoogra oil orally, irregularly, approximate total 19 liters.

Sequelæ: Anesthesia unchanged.

Outcome: No recurrence for one year.

CASE 30-108

Condition on admission: Filipino male, age 26, well developed and nourished; good general health. Duration of leprosy 4 years. Edema under both eyes. Anesthetic macule over shoulder; on crest of shoulder a smaller patch, also one on left arm. Right ulnar nerve palpable.

Progress in hospital: In 1923, excision of a pterygium. No acute illness excepting mental disintegration evidenced after admittance until shortly before discharge. At different times he had to be confined and restrained. Slow improvement in leprosy during eight years in hospital.

Treatment: Chaulmoogra oil by mouth irregularly, approximate total 20 liters.

Sequelæ: No evidence of leprosy.

Outcome: No recurrence after one year.

CASE 31-160

Condition on admission: Mexican male, age 44; duration of leprosy 32 years. Mixed type, anesthetic predominating. Large pendulous ear lobes. Double wrist and toe drop. Double main-en-griffe, more marked left side. Double ectropion both eyes.

Progress in hospital: Gradual cessation of leprosy activity.

Treatment: Chaulmoogra oil by mouth for one year, total of 1,500 cubic centimeters. Cod liver oil one-fourth to one-half ounce daily for four years. Galvanic current to hands for five months three times weekly.

Sequelæ: Deformities persist, slight improvement in sensation.

Outcome: No recurrence in one year.

CASE 32-87

Condition on admission: Negro male, age 43, duration of leprosy 10 years. Anesthetic type; muscular atrophy of left forearm and hand, main-en-griffe left hand. Ulnar nerves palpable. Many pigmented macules of varying sizes over face, trunk, and arms. Sensation to pain lost in lower two-thirds forearms and lower parts of legs, including feet. Loss of sensation to heat and cold over same areas. Trophic ulcer on plantar surface of foot.

Progress in hospital: Rectal fistula drained under general anesthesia. Lisfranc's amputation right foot. Improved very slowly during 15 years' stay in hospital.

Treatment: Chaulmoogra oil by mouth irregularly, approximately 4 liters. Strychnine sulphate grain one-sixtieth t. i. d. for two years. Galvanic current

to arms for five months. Mercurochrome, intravenously, total 167 cubic centimeters.

Sequelæ: Anesthesia and deformities unchanged.

Outcome: No recurrence for one year.

CASE 33-118

Condition on admission: White female, age 19, duration of leprosy two years, type anesthetic; few macules scattered over body, some anesthesia.

Progress in hospital: General health remained excellent, progressive absorption of small bones of hands and feet. Hospitalized 24 years.

Treatment: Chaulmoogra oil by mouth 30 drops and strychnine one-sixtieth grain t. i. d. irregularly, total chaulmoogra 6 liters.

Sequelæ: Complete absorption of small bones of hands and feet. Anesthesia unchanged.

Outcome: No recurrence for one year.

CASE 34-84

Condition on admission: White female, age 13, duration four years. Anesthetic type. Inflamed eye and severe nerve pains in arms and legs, followed by red spots which occupied entire body

Progress in hospital: About 10 years after admission, fingers began to contract and gradually bone absorption took place. About the same time ulcers developed on both feet, due to necrotic bone; facial paralysis began in 1908 and progressed slowly. Has had two operations for ptosis of eyelid, and numerous times curettement of bone, also Chopart's amputation of one foot. About 1921, for first time began to take antileprosy treatment. Total time in hospital 33 years.

Treatment: Unable to take chaulmoogra oil for any length of time, due to gastric disturbances. Ethyl esters of chaulmoogra oil in doses of 1 to 5 cubic centimeters irregularly, approximately 42 cubic centimeters. Also strychnine grain one-sixtieth b. i. d. irregularly. Chaulmoogra by mouth, enteric capsules; approximate total in three years, 6 liters. Chaulmoogra-benzocaine intramuscular injections semiweekly, regularly, beginning with 1 cubic centimeter and increasing to 8 cubic centimeters twice weekly, total 720 cubic centimeters intramuscularly; also hydrotherapy, electrotherapy, and massage.

Sequelæ: Deformities of hands, feet; facial distortion and anesthesia remain.

Outcome: No recurrence for one year.

CASE 35-364

Condition on admission: White male, age 50, good general health, well developed and nourished. Duration of leprosy, 11 years. Mixed type; ear lobes slightly thickened. Many circular patches over body, forearms, thighs, and legs. Anesthetic to pain, heat, and cold over patches. Thickening of ulnar nerves; loss of perspiration over patches and on external surface of left foot.

Progress in hospital: Made remarkable improvement and only on one or two occasions when first admitted suffered with neuritis. Chronic bronchitis, but no evidence of tuberculosis. Lesions faded rapidly, perceptible improvement in sensation. Improvement steady during 3½ years in hospital.

Treatment: Benzocaine-chaulmoogra oil intramuscularly semiweekly, total 560 cubic centimeters. Ethyl esters of chaulmoogra oil intramuscularly, total 202 cubic centimeters. Hydrotherapy, contrast baths to hands and feet regularly for two years; ultra-violet to chest for bronchitis for three months.

Sequelæ: Improvement in sensation in old macules. No evidence of active leprosy.

Outcome: No recurrence for one year.

CASE 36-429

Condition on admission: White female, age 65, well developed, nourished, robust, in excellent general health; duration of leprosy eight years. Anesthetic type. Two circular patches on left leg, two on right leg, and one on right hip. Anesthesia both hands and right forearm midway to elbow. Perforating ulcer plantar surface right foot. Ulnar nerves palpable. Contraction index finger left hand. Atrophy and absorption of distal phalanges of ring and little fingers on right hand. Absorption of proximal phalanges of big and adjoining toe with contraction of toes.

Progress in hospital: Improvement began soon after admittance, complete disappearance of lesions and healing of ulcer on foot. Time in hospital, three years.

Treatment: Chaulmoogra oil with benzocaine, intramuscular injections semi-weekly, regularly for a total of 18 months, doses ranging from 2 cubic centimeters to 8 cubic centimeters, total 830 cubic centimeters. Quartz mercury and ultra-violet lights to feet for nine months.

Sequelae: Slight evidence remains of old trophic ulcer of foot; marked improvement in sensation and contracted fingers.

Outcome: No recurrence for two years.

CASE 37-245

Condition on admission: White female, age 53, well developed, nourished and in good health. Duration of leprosy one year. Mixed type, anesthetic predominating. Macules over chest and back, some are present over abdomen and thighs.

Progress in hospital: Gradual disappearance of macules. Stay in hospital, five years.

Treatment: Chaulmoogra oil by mouth consistently, approximate total 12 liters.

Sequelae: No evidence of lesions.

Outcome: No recurrence in two years.

CASE 38-251

Condition on admission: Negro male, age 40, well developed and nourished, in excellent health. Duration of leprosy over 10 years. Nodular type; light colored patches over entire body; epithelium exfoliating over most patches. No anesthesia to pain. Heat and cold perception diminished over lower dorsal surface, forearms and lower third both legs. Lower third left leg and ankle swollen and show scars and dark pigmentation. Ulnar nerves palpable.

Progress in hospital: Rapid improvement during 5 years in hospital.

Treatment: Ethyl esters of chaulmoogra oil from admission, two cubic centimeters weekly, approximate total 150 cubic centimeters. Chaulmoogra by mouth regularly, approximate total 20 liters. Radiant light to hands, 24 months; baths and exercise to hands, 40 months contrast.

Sequelae: No evidence of former lesions.

Outcome: No recurrence for one year.

CASE 39-264

Condition on admission: White male, age 67, well developed, good general health. Duration of leprosy three years. Mixed type; face, forehead and back very much thickened and red; large red, elevated and thickened patches with well-defined borders located as follows: One on left arm; 8 on left forearm and wrist; 2 on right arm; 1 on right elbow. Large diffuse patches over right forearm; several patches on left thigh and several large diffuse areas on legs and feet. Anesthetic to pain, heat, and cold over patches. Loss of hair over chest.

Progress in hospital: Operation for hernia, otherwise uneventful improvement during four years' stay in hospital.

Treatment: Mercurochrome intravenously weekly, total 2,872 cubic centimeters. Chaulmoogra oil by mouth in small doses very irregularly.

Sequelæ: Scars from recession of leprosy processes; some anesthesia remains.

Outcome: No recurrence for two years.

CASE 40-125

Condition on admission: White female, age 40, duration of leprosy six years. Mixed type; diffuse thickening of face and forearms and small white patches over back. Anesthetic to touch below elbow on ulnar side and lower half radial side both forearms and below lower third of thighs on outer side and below both knees on inner side. Thickening of ulnar and sup. orbital nerves. Loss of eyebrows and lashes. Scars of old ulcers on legs. Both ears pendulous, end of nose receded, nostrils almost closed.

Progress in hospital: Caulterization leproma right eye. Leprosy slowly became inactive during seven years' stay in hospital.

Treatment: Salvarsan 0.3, four doses; chaulmoogra oil with benzocaine intramuscularly, semiweekly, total 240 cubic centimeters, chaulmoogra oil by mouth since admission, approximate total two liters.

Sequelæ: Considerable scarring on face; some anesthesia remains.

Outcome: No recurrence after one year.

CASE 41-293

Condition on admission: White male, age 43, good physical condition; duration of leprosy one year. Mixed type; brown patches over both legs from waist down and over both hands, both elbows and several on both arms. Anesthetic to pain, heat, and cold over the surface covered by patches.

Progress in hospital: Made marked improvement from admittance. Shortly after admission had a slight febrile attack and a few scattered tubercles. Improvement uneventful thereafter. Stay in hospital, four and one-half years.

Treatment: Ethyl esters of chaulmoogra oil once weekly for six months, a total of 42 cubic centimeters. Chaulmoogra oil by mouth regularly, approximate total 13 liters. Contrast baths daily to hands and feet, 42 months.

Sequelæ: No evidence of former lesions.

Outcome: No recurrence for one year.

CASE 42-385

Condition on admission: White male, age 40, general physical condition excellent. Duration of leprosy 8 years. Anesthetic type; small red macule on left buttock. Anesthetic to touch, pain, heat, and cold, both hands to elbows, right foot and leg to middle of thigh posteriorly, left buttock and an area on back above girdle; muscular atrophy both hands, left leg and foot. Ulnar nerves thickened. Contraction second, third, and fourth fingers both hands.

Progress in hospital: Improvement from admittance, continued during three and one-half years in hospital.

Treatment: Ethyl esters of chaulmoogra oil intramuscularly, total 57 cubic centimeters. Tryparsamide intravenously, 3 grams weekly, irregularly for 12 months, a total of 27 injections and 78 grams. Chaulmoogra oil benzocaine intramuscularly, semiweekly for 15 months, total of 600 cubic centimeters, chaulmoogra oil by mouth for 19 months, total of 1,750 cubic centimeters, contrast baths and massage with exercise to hands daily for 5 months.

Sequelæ: Deformities of hands, atrophy and contracted fingers remain; anesthesia is improved.

Outcome: No recurrence for one year.

CASE 43-521

Condition on admission: White male, age 45. Admitted as a stretcher case; general physical condition much below par. Very feeble and emaciated. Duration of leprosy 15 years. Mixed type, nodular predominating. Pronounced anesthesia in areas supplied by terminations of ulnar nerves. Both ear lobes pendulous, containing many tubercles, also many tubercles over face, hands, outer surface arms, also legs and feet. Ulnar nerves enlarged and thickened; all fingers slightly contracted. Subject to periodic attacks of leprosy fever with outcropping of tubercles associated with neuritis.

Progress in hospital: At times, mentally unbalanced and on several occasions had to be restrained. Symptoms of active leprosy gradually subsided. Time in hospital, 10 years.

Treatment: From admittance, took small doses of chaulmoogra oil by mouth, irregularly, supplemented by strychnine one-sixtieth grain t. i. d., irregularly. For two years took chaulmoogra oil mixed with food, in this manner took 50 ounces. Also took 12 intramuscular injections of chaulmoogra oil with benzocaine 5 cubic centimeters semiweekly, a total of 60 cubic centimeters.

Sequelæ: Diminished sensation in areas previously affected. Double incomplete claw hand.

Outcome: No recurrence for one year.

CASE 44-119

Condition on admission: White female, age 66, well developed and well nourished. Duration of leprosy one year, nodular type. Pigmented raised plaques on forearms.

Progress in hospital: Gradual disappearance of lesions during seven and one-half years' stay in hospital.

Treatment: Ethyl esters of chaulmoogra one year, total of 185 cubic centimeters; chaulmoogra oil by mouth, continuously, total about 18 liters; strychnine one sixtieth grain irregularly; physiotherapy consistently for two years.

Sequelæ: No evidence of leprosy.

Outcome: No recurrence in one year.

CASE 45-99

Condition on admission: White female, age 42; duration of leprosy 17 years. Anesthetic type, anesthetic to pain, heat, and cold below elbow on ulnar side and forearm on radial side both arms, below upper third both legs. Perforating ulcer plantar surface left foot. Muscular atrophy of hands. Distal phalanges of all fingers have been absorbed; distal half of right foot and third toe left foot have been amputated.

Progress in hospital: Gradual cessation of active symptoms; time in hospital, 34 years.

Treatment: Very little treatment taken in later years. In early hospitalization patient took chaulmoogra oil by mouth in small doses.

Sequelæ: Old trophic ulcer on right foot, muscular atrophy in hands; anesthesia unchanged.

Outcome: No recurrence in two years.

CASE 46-474

Condition on admission: White female, age 17 years; duration of leprosy four years. Anesthetic type; small macules scattered over various parts of body; anesthesia both hands and forearms and lower legs below knees to toes, also over numerous small areas over entire body. Contraction all fingers both hands. Perforating ulcer left foot.

Progress in hospital: Gradual cessation of active symptoms during 14 years in hospital.

Treatments: Intolerant of chaulmoogra oil by mouth and not able to take even small doses over any period of time. Total in three years, 160 cubic centimeters. In 1928 began taking chaulmoogra oil with benzocaine by mouth in 10 gtt capsules, and in this manner took 100 cubic centimeters. Took 18 injections in 1928 of benzocaine-chaulmoogra oil intramuscularly, 5 cubic centimeters semiweekly, total 90 cubic centimeters. Strychnine, grain one-sixtieth t. i. d for 18 months. Daily massage, hydrotherapy and exercise to hands for 14 months. Ultraviolet to ulcer foot, four months.

Sequelæ: Many old scars remain as evidence of anesthesia; contraction of fingers, both hands. No evidence of activity.

Outcome: No recurrence in one year.

CASE 47-326

Condition on admission: White male, age 22, duration of leprosy nine years. Mixed leprosy, nodular type predominating; lepromata in both ear lobes and over entire face, left arm, knee, and hip. Brown patches scattered over entire body. Anesthesia little finger right hand, outer surface left leg and both feet from ankles to toes. Both ulnar nerves enlarged. Loss of hair of eyebrows. Hands edematous, little finger left hand contracted.

Progress in hospital: Suffered at times with neuritis and tubercles; recovery gradual from admittance. Time in hospital, four years.

Treatment: Tryparsamide intravenously, in doses, weekly, varying 1 gram, 2 grams, and 3 grams for 17 doses for a total of 23 grams. Ethyl esters of chaulmoogra, weekly intramuscular doses 2 cubic centimeters for total of 110 cubic centimeters. Smallpox vaccine, two years; began with puncture vaccinations followed by intradermal injections of 0.05 cubic centimeter biweekly, increasing 0.05 cubic centimeter every second dose until 0.5 cubic centimeter was reached, which was maintained to date of discharge. Took cod-liver oil in large doses by mouth from time of admittance. Contrast baths to hands with massage during entire stay.

Sequelæ: No evidence of brown patches or lepromata. Slight thickening of skin and loss of hair of eyebrows remain. Original areas of anesthesia much improved.

Outcome: No recurrence in six months.

CASE 48-103

Condition on admission: White male, age 33; duration of leprosy four years. Mixed type, nodular predominating; small lepromata over forearm, arms, and back. Diffuse thickening on forehead over eyebrows. Patches with diffuse increased pigmentation over legs and arms. Anesthetic to pain, heat, and cold on left wrist and hand, except fingers, and below upper half right arm, below upper third on external surface, and lower third internal surface of both legs. Muscular atrophy of hands; ulnar nerves thickened. Loss of hair of eyebrows and lashes. Contraction of fingers right hand with shortening from absorption.

Progress in hospital: Steady, gradual improvement during eight years in hospital.

Treatment: Large amount of olive oil. Chaulmoogra oil by mouth in doses of 100 to 150 gtt. daily, total of 2,250 cubic centimeters. Mercurochrome intravenously, 7 injections, total 140 cubic centimeters.

Sequelæ: Loss of hair of eyebrows, with deformities of fingers. Anesthesia present as on admittance, but improved. Slight scarring, over forehead, of old nodules. No evidence of any other leprous lesions on body.

Outcome: No recurrence for six months.

CASE 49-470

Condition on admission: Negro male, age 50, well developed and nourished, in excellent general health; duration of leprosy 10 years. Mixed type. Small, light-brown patch in center of back; sensation diminished in both hands, forearms, and feet; atrophy of interosseous muscles in both hands; both ulnar nerves thickened; contraction of all fingers, both hands; absorption first joint of right thumb.

Progress in hospital: Improvement progressive since admittance. Stay in hospital, one and one-half years.

Treatment: Ethyl esters of chaulmoogra oil intramuscularly into buttocks weekly, in 2 cubic centimeter doses, continuously until discharge. Massage and contrast baths to hands.

Sequelæ: Contraction of fingers as on admittance. Anesthesia slightly improved.

Outcome: No recurrence in six months.

CASE 50-103

Condition on admission: White male, age 39, well developed and nourished. Duration of leprosy 10 years. Anesthetic type. Red patches over forearms. Anesthetic to pain, heat, and cold over entire body. Ulcer on left leg and index finger of left hand. Muscular atrophy both hands. Thickening of ulnar nerves. Loss of hair of eyebrows, lashes, forearms, and legs. Contraction all fingers both hands, except thumbs and first fingers of right hand, some shortening. Scars of old ulcers on legs and knees. Scar tissue formation over face. Both ear lobes absent.

Progress in hospital: Improvement very slow but consistent during eight years in hospital.

Treatment: Five intravenous injections of salvarsan, of dosage 0.6; 10 injections of 0.3 salvarsan. Mercurochrome intravenously, total 214.6 cubic centimeters. Cod-liver oil consistently taken by mouth, in large doses, also Fowler's solution during febrile attacks. Chaulmoogra oil orally for 10 months, 45 gtt. daily; total, 587 cubic centimeters. Ethyl esters of chaulmoogra oil seven and one-half months; 1 to 2 cubic centimeters intramuscularly, once weekly, total of 45 cubic centimeters.

Sequelæ: No evidence of former lesions, but remnants of old scars over face and body, with deformities of hands remaining.

Outcome: No recurrence for six months.

CASE 51-272

Condition on admission: Negro male, age 32, well developed, nourished and in good general health. Duration of leprosy three years. Mixed type. Diffuse thickening of skin over margins of patches on face, neck, and over patch on back and right buttock. Light-colored patches on both arms, forearms, back, thigh, and ankle of left leg and a large patch on right buttock. Anesthesia to pain, heat and cold over all patches. Slight atrophy of interosseous muscles. Thickening both ulnar nerves.

Progress in hospital: Progressive improvement during four years' stay in hospital.

Treatment: Chaulmoogra oil orally for 16 months, averaged 30 gtt. daily for a total of 471 cubic centimeters. No other treatments.

Sequelæ: No evidence of any lesions. Anesthesia much improved.

Outcome: No recurrence for six months.

CASE 52-536

Condition on admission: Filipino male, age 31, well developed and nourished; duration of leprosy one year, anesthetic type; diffuse thickening forearms and legs, considerable anesthesia, plantar ulcer, atrophy interosseous muscles, fingers slightly clawed, saddle nose.

Progress in hospital: Gradual cessation of activity during one and one-half years in hospital.

Treatment: Chaulmoogra oil by mouth, total 2 liters; physiotherapy consistently for one and one-half years.

Sequelæ: Saddle nose, slight contraction fingers, some atrophy interosseous muscles.

Outcome: No recurrence in six months.

CASE 53-227

Condition on admission: Filipino male, age 19, well developed, well nourished; duration of leprosy one year, type mixed. Small lepromata on back; diffuse thickening of skin of hands, arms, face, and neck; brown pigmentation over much of body; ulnar nerves enlarged and nodular.

Progress in hospital: Had eight attacks of lepra fever with outcroppings of evanescent nodules; symptoms gradually disappeared over six and one-half years' stay in hospital.

Treatment: Mercurochrome intravenously 33 injections, dose 10 to 25 cubic centimeters. Ethyl esters of chaulmoogra oil about 215 cubic centimeters. Fowler's solution for 1 year. Chaulmoogra oil by mouth, about 17 liters. Physiotherapy one and one-half years.

Sequelæ: No visible signs of leprosy.

Outcome: No recurrence in six months.

CASE 54-255

Condition on admission: White male, age 17, well developed, well nourished, nodular type; duration of leprosy one year; ear lobes thickened; thickened patches over elbows; two pigmented patches on back

Progress in hospital: Several attacks of lepra fever with evanescent nodules; improvement gradual over five and one-half years' stay in hospital.

Treatment: Mercurochrome, intravenously, 22 cubic centimeters; ethyl esters of chaulmoogra oil, 520 cubic centimeters; chaulmoogra oil by mouth, 15 liters; Fowler's solution three years; smallpox vaccine irregularly; benzocaine-chaulmoogra oil, 2 liters; physiotherapy four years.

Sequelæ: No evidence of leprosy.

Outcome: No recurrence in six months.

CASE 55-334

Condition on admission: White female, age 49, general health good, duration of leprosy one year, type mixed; diffuse thickenings face, pigmentation on legs, anesthesia to pain, heat, and cold on extremities; atrophy of muscles both hands, all fingers contracted; one cornea obliterated by leproma, other semiopaque, saddle nose, partial facial paralysis.

Progress in hospital: Trophic ulcers of feet developed and subsequently healed, after curettement and osteotomy; several attacks of lepra fever and evanescent nodules, improvement slow over four and one-half years in hospital.

Treatment: Mercurochrome intravenously 60 cubic centimeters; ethyl esters of chaulmoogra oil, total 60 cubic centimeters; benzocaine-chaulmoogra oil, 1 liter; chaulmoogra oil by mouth, total 10 liters; physiotherapy consistently.

Sequelæ: Contractions of fingers unchanged, eyes unchanged, otherwise no evidence of leprosy.

Outcome: No recurrence for six months.

CASE 56-400

Condition on admission: White male, age 23, well developed, well nourished, right leg amputated from accident, duration of leprosy three years, type anesthetic; red macules over most of body, small ulcer left foot; atrophy and some contraction of fingers, partial facial paralysis; ptosis both eyelids.

Progress in hospital: Slow, consistent improvement during four years in hospital.

Treatment: Mercurochrome, intravenously, 70 cubic centimeters; chaulmoogra oil by mouth, total 1 liter; physiotherapy intermittently.

Sequelæ: No skin lesions present; trophic ulcer left foot and muscular atrophy with contractions unchanged.

Outcome: No recurrence for six months.

CASE 57-441

Condition on admission: Chinese male, age 29, well developed and well nourished; duration of leprosy one year, type anesthetic. Red spots on face, buttocks, and legs; anesthesia ulnar side of forearms, diminished sensation in feet; left facial paralysis.

Progress in hospital: Slow improvement during three years' stay in hospital.

Treatment: Chaulmoogra oil by mouth, total 10 liters; benzocaine-chaulmoogra oil, 560 cubic centimeters.

Sequelæ: Sensation improved, facial paralysis unchanged.

Outcome: No recurrence in six months.

CASE 58-138

Condition on admission: White male, age 23, duration of leprosy eight years, type anesthetic, well developed and well nourished; interosseous muscles atrophic, contractions all fingers; macules scattered over entire body, considerable anesthesia; ectropion of right eye.

Progress in hospital: Plastic operation on eye; slow improvement during 7½ years' stay in hospital

Treatment: Salvarsan 9 injections; tryparsamide 20 injections, ethyl esters of chaulmoogra, 355 cubic centimeters; benzocaine-chaulmoogra oil, 520 cubic centimeters; chaulmoogra oil by mouth, 14 liters, strychnine one-sixtieth grain irregularly; physiotherapy one year.

Sequelæ: No leprous skin lesions, deformities of fingers unchanged.

Outcome: No recurrence in six months.

CASE 59-172

Condition on admission: White male, age 36, duration of leprosy two years, type nodular. Few nodules on forehead; diffuse thickening of skin of face, numerous nodules on body.

Progress in hospital: One attack of lepra fever with evanescent nodules, otherwise slow improvement during seven and one-half years' stay in hospital.

Treatment: Chaulmoogra oil by mouth 16½ liters.

Sequelæ: No evidence of leprosy.

Outcome: No recurrence in six months.

CASE 50-128

Condition on admission: White male, age 21, well developed and well nourished; duration of leprosy four years, type anesthetic; double claw-hand, plantar ulcers both feet, anesthesia both arms.

Progress in hospital: Slow improvement during eight years' stay in hospital.

Treatment: Chaulmoogra oil, 10 liters; strychnine one-sixtieth grain t. i. d., six years; physiotherapy four years.

Sequelæ: Contractions of fingers and anesthesia unchanged.

Outcome: No recurrence for six months.

CASE 61-403

Condition on admission: White female, age 23, well developed, poorly nourished, duration of leprosy one year, type anesthetic; numerous patches of anesthesia on body, arms and legs; atrophy interosseous and contraction of all fingers.

Progress in hospital: Slow improvement two years, rapid improvement last two years.

Treatment: Ethyl esters of chaulmoogra 50 cubic centimeters; strychnine one-sixtieth grain t. i. d., three years; benzocaine-chaulmoogra oil, one liter; physiotherapy three years.

Sequelæ: Anesthesia almost completely disappeared, hands normal.

Outcome: No recurrence for six months.

CASE 62-294

Condition on admission: Hawaiian, male, 27 years of age. Anesthetic type; well developed and general physical condition fair. Very few manifestations of leprosy. Duration of leprosy two years. Several small depigmented patches over both arms. Slight thickening of ulnar nerves. Anesthetic to pain over all small depigmented patches. Right leg has been amputated just below hip joint due to tuberculosis according to his history.

Progress in hospital: Slow improvement of all leprosy lesions. Has had three pulmonary hemorrhages since admittance. Appendix removed in 1925.

Treatment: Chaulmoogra oil by mouth in doses of from 27 to 75 drops t. i. d. since admittance. Total 20 liters.

Sequelæ: No visible signs of leprosy.

Outcome: No recurrence for six months.

CASE 63-274

Condition on admission: White male, age 47, duration of leprosy 10 years. Mixed type; well developed, muscular and robust, general health good. Mentally defective. Leonine appearance, nodules in both ear lobes, small macules over back and ulcers on both great toes. Skin over both hands and wrists thickened and bluish in color. Symmetrical brown mottling of skin over extensor surfaces of forearms and lower two-thirds of arms. No anesthesia detectable.

Progress in hospital: Leprosy has shown gradual marked improvement. His mental condition remains about the same as on admission.

Treatment: Has taken only 41 cubic centimeters of ethyl esters of chaulmoogra oil over a period of two years in doses of 2 cubic centimeters weekly.

Sequelæ: No visible signs of leprosy lesions.

Outcome: No recurrence for six months.

CASE 64-40

Condition on admission: White male, age 32, duration of leprosy nine years. Mixed type; emaciated and general health poor. Brown pigmented spots cover entire body. Anesthesia over nearly entire body. Ulcers on both feet. Mus-

cular atrophy in both hands. Hair of eyebrows and lashes gone. Nose saddled. All phalanges of both hands and feet absorbed.

Progress in hospital: Became blind in both eyes due to corneal ulcerations. The arrest of leprosy has been a very slow progressive process extending over a period of 20 years.

Treatment: Has taken no routine treatment excepting paliative.

Sequelæ: Mutilations of hands, feet, and face remain. Also anesthesia over entire body and total blindness.

Outcome: No recurrence for six months.

CASE 65-453

Condition on admission: White male, age 40, duration of leprosy 17 years. Anesthetic type; general health poor. No lesions visible excepting trophic ulcers on plantar surface both feet, muscular atrophy interosseous muscles both hands with contraction of all fingers and toes. Ptosis both cyclids.

Progress in hospital: Marked improvement in atrophic conditions and general health.

Treatment: Chaulmoogra oil by mouth in doses of from 25 to 50 gtt. t. i. d., total of 12 liters. Hydrotherapy, thermotherapy, massage, and ultra violet rays regularly during entire stay in hospital.

Sequelæ: No evidence of active lesions. Mutilations of hands, feet, and face, also anesthesia remains.

Outcome: No recurrence for six months.

Summary

Abstracts are submitted from the clinical records of 65 lepers paroled during 10 years from the National Leprosarium at Carrville, La.

Twelve paroled patients were of the nodular type on admission, with average ages of 39.5 years and an estimated average duration of 3.7 years prior to segregation. The average period of hospitalization for this group was 5.8 years.

Twenty-six paroled patients were of the mixed type on admission, with average ages of 40 years and an estimated average duration of 6.8 years prior to segregation. The average period of hospitalization for this group was 5.5 years.

Twenty-seven paroled patients were of the anesthetic type on admission with average ages of 30.9 years and an estimated average duration of 6.5 years prior to segregation. The average period of hospitalization for this group was 9 years.

Fifty-five (33 active and 22 quiescent) lepers received crude chaulmoogra oil by mouth (39 received additional treatments).

Twelve (7 active and 5 quiescent) lepers received benzocaine-chaulmoogra oil by intramuscular injection (8 received additional treatments).

Twenty-one (15 active and 6 quiescent) lepers received the ethyl esters of chaulmoogra oil by intramuscular injection (13 received additional treatments).

Nine (4 active and 5 quiescent) lepers received mercurochrome intravenously (5 received additional treatments).

Four (2 active and 2 quiescent) lepers received Fowler's solution in conjunction with other treatments.

Three (1 active and 2 quiescent) lepers received salvarsan in conjunction with other treatments.

One active leper received tryparsamide in conjunction with other treatments.

Four (2 active and 2 quiescent) lepers received intramuscular injections of smallpox vaccine (3 received additional treatments).

Twenty-five (15 active and 10 quiescent) lepers received various forms of physiotherapy (23 received additional treatments).

Two patients, during their entire stay in the hospital, declined to receive treatment.

Comment

A critical evaluation of medicinal treatment as given in this hospital is impossible because of the numerous factors involved; each leper might have been admitted as an early or late case and during hospitalization his disease might have been active or quiescent; he might have manifested symptoms of skin, nerve, or mixed leprosy; he might have taken one or several treatments over long or short periods of time. In addition, there must be weighed the importance of improved hygiene, including general medical, surgical, and dental care and prophylaxis, dietary balance, and the readjustment of mental equilibrium so frequently disturbed by the difficulties encountered by the average leper in public life.

Presumptive conclusions may be drawn from a comparison of the clinical conditions of lepers, treatments, and parole records of 10 years ago, with present conditions.

(a) Hospital records and personal observations indicate that, on the average, no appreciable change has taken place in the severity of the cases and that an approximately equal ratio of early and advanced cases are hospitalized.

(b) Treatment a decade ago consisted largely of chaulmoogra oil administered intramuscularly and orally, ethyl esters of chaulmoogra oil, Fowler's solution, and general supportive measures. To-day, to the older therapeutic measures have been added a variety of experimental treatments, some of which have proved of definite value. In addition to treatment directed toward the cure of leprosy itself, the patients receive the attention of consultants in the specialties and greatly enlarged hygienic, psychotherapeutic, and physiotherapeutic facilities.

(c) Paroles, until 10 years ago, were granted after careful physical examination supplemented by a few bacterioscopic examinations, relapses over a period of 35 years amounted to 31 per cent. For 10

years parole requirements have been rigid and based on repeated physical and bacterioscopic examinations; relapses during this time have been 3 per cent.

Conclusions

(1) Advanced therapeutic measures and improved methods of hospitalization have increased the parole rate in this hospital.

(2) A number of variable conditions and the impracticability of control experiments preclude the isolating of the outstanding factor responsible for the recoveries here reported.

(3) Crude chaulmoogra oil administered orally and intramuscularly has been most continuously taken by the largest number of the paroled patients.

DEATH RATES IN A GROUP OF INSURED PERSONS

Rates for Principal Causes of Death for January, 1930

The accompanying table, taken from the Statistical Bulletin for February, 1930, issued by the Metropolitan Life Insurance Co., presents the mortality record of the industrial insurance department of the company for January, 1930, as compared with the preceding month, December, 1929, and with January, 1929. Death rates are given for the principal causes of death. They are based on a strength of approximately 19,000,000 insured persons in the United States and Canada.

Health conditions in the United States during January, 1930, were in marked contrast to those obtaining during the first month of last year, when the influenza epidemic which was sweeping the country was at its peak. The January mortality rate for these persons for 1929 was the highest of the decade, 13.4 per 1,000, while the rate for January of this year is stated to be the lowest yet recorded, 9.4 per 1,000, as compared with the previous low rate of 9.41 for January, 1927.

All four of the principal epidemic diseases of childhood registered lower death rates for the month this year than last. In regard to diphtheria the bulletin states:

The drop for diphtheria from 13.4 in 1929 to 10.9 in 1930 is particularly noteworthy. When the diphtheria death rate increased somewhat three years ago, those opposed to toxin-antitoxin immunization were disposed to make capital out of the rise, inasmuch as it occurred in the face of an increase in the number of persons who had been inoculated. Public health workers contended that the 1927 diphtheria record was merely a temporarily unfavorable phase in a situation marked by practically continuous improvement. This viewpoint has been sustained by later developments. The diphtheria death rate dropped again in 1928, fell to a new minimum in 1929, and now bids fair to show a further and pronounced decrease to a new low point in 1930.

The only causes of death which have higher death rates for January of this year than last are homicides and automobile fatalities. The automobile fatality rate shows an increase of 13½ per cent.

Death rates (annual basis) per 100,000 for principal causes of death, January, 1930

[Industrial department, Metropolitan Life Insurance Co.]

Cause of death	Death rate per 100,000 lives exposed ¹				
	January, 1930	Decem- ber, 1929 ²	January, 1929 ²	Year	
				1929 ²	1928
Total, all causes.....	940.1	869.6	1,344.9	916.2	916.6
Typhoid fever.....	1.1	2.1	1.8	2.3	2.7
Measles.....	2.1	1.8	3.2	2.9	5.2
Scarlet fever.....	3.8	3.3	4.2	2.6	2.7
Whooping cough.....	4.5	3.3	0.3	5.6	5.7
Diphtheria.....	10.9	10.4	13.4	8.6	9.7
Influenza.....	28.2	20.5	197.7	41.1	24.8
Tuberculosis (all forms).....	79.7	74.1	94.0	85.2	90.1
Tuberculosis of respiratory system.....	60.8	66.2	84.6	75.2	78.8
Cancer.....	74.4	76.1	80.9	76.0	75.7
Diabetes mellitus.....	22.3	16.7	28.2	18.0	17.6
Cerebral hemorrhage.....	59.3	57.7	68.3	56.9	56.7
Organic diseases of heart.....	161.3	144.5	202.3	144.0	142.2
Pneumonia (all forms).....	108.8	87.9	212.8	86.9	80.3
Other respiratory diseases.....	13.2	10.8	25.2	11.4	12.4
Diarrhea and enteritis.....	11.6	12.7	14.2	20.4	24.0
Bright's disease (chronic nephritis).....	73.7	66.6	85.7	68.1	70.5
Puerperal state.....	12.0	11.1	14.9	13.3	13.9
Suicides.....	8.6	7.5	8.7	8.4	8.8
Homicides.....	7.0	6.9	6.7	6.4	6.7
Other external causes (excluding suicides and homi- cides).....	61.3	65.6	62.1	63.9	62.6
Traumatism by automobiles.....	20.2	21.3	17.8	20.6	18.4
All other causes.....	196.4	191.8	210.4	194.0	195.7

¹ All figures in this table include infants insured under 1 year of age.² All 1929 death rates subject to slight correction, as they are based on provisional estimate of lives exposed to risk.³ Rate not comparable with that for 1930

COURT DECISION RELATING TO PUBLIC HEALTH

Osteopath held a "physician" under law prescribing qualifications for city health officers.—(Washington Supreme Court; State ex rel. Walker v. Dean, 284 P. 756; decided Feb. 3, 1930.) The question was presented as to whether or not a legally qualified osteopathic physician was "a legally qualified physician" within the meaning of section 6092, Remington's Compiled Statutes, which provided for the appointment of a legally qualified physician as city health officer. The word "physician" was not defined in the State laws. At the time of the enactment of section 6092, there was no law authorizing the licensing of osteopaths, and, therefore, osteopaths were not within the contemplation of the legislature when it enacted section 6092.

The supreme court, however, decided that, in construing such section, in so far as the same prescribed qualifications for city health officers, reference should be had to the laws in force at the time that an appointment thereunder was made, and that the inquiry was not governed by those laws which were in force at the time that the section was enacted. The court then decided that a legally qualified osteopathic physician was a legally qualified physician within the purview of section 6092.

DEATHS DURING WEEK ENDED MARCH 15, 1930

Summary of information received by telegraph from industrial insurance companies for the week ended March 15, 1930, and corresponding week of 1929. (From the Weekly Health Index, March 19, 1930, issued by the Bureau of the Census, Department of Commerce)

	Week ended Mar. 15, 1930	Corresponding week, 1929
Policies in force.....	75, 564, 251	73, 544, 830
Number of death claims.....	15, 738	16, 748
Death claims per 1,000 policies in force, annual rate.....	10. 9	11. 9

Deaths from all causes in certain large cities of the United States during the week ended March 15, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index, March 19, 1930, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Mar. 15, 1930		Annual death rate per 1,000 corre- sponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Mar. 15, 1930 ¹
	Total deaths	Death rate ²		Week ended Mar. 15, 1930	Corro- sponding week, 1929	
Total (65 cities).....	7, 851	13. 8	14. 7	771	888	99
Akron.....	41			10	11	91
Albany.....	37	16. 0	16. 0	6	2	131
Atlanta.....	92	18. 8	16. 1	9	11	95
White.....	49			3	5	95
Colored.....	43	(3)	(3)	6	6	95
Baltimore.....	252	15. 7	16. 1	18	30	61
White.....	193			9	18	39
Colored.....	59			9	12	146
Birmingham.....	78	(3)	18. 3	4	15	87
White.....	29			0	7	0
Colored.....	49	(3)	(3)	4	8	95
Boston.....	246	16. 0	17. 7	26	26	73
Bridgeport.....	40			1	3	17
Buffalo.....	151	14. 2	16. 1	12	22	53
Cambridge.....	31	12. 8	12. 8	5	2	93
Camden.....	44	16. 9	16. 2	6	5	109
Canton.....	28	12. 5	12. 5	2	1	50
Chicago.....	766	12. 6	12. 6	83	62	73
Cincinnati.....	164			12	13	71
Cleveland.....	206	10. 6	13. 2	27	28	81
Columbus.....	70	12. 2	15. 3	5	10	49
Dallas.....	40	9. 6	14. 8	6	14	-----
White.....	32			5	13	-----
Colored.....	8	(3)	(3)	1	3	29
Dayton.....	48	13. 6	10. 5	2	4	-----
Denver.....	74	13. 1	15. 6	5	10	52
Des Moines.....	43	14. 8	10. 6	3	6	52
Detroit.....	332	12. 6	13. 8	64	53	99
Duluth.....	28	12. 5	12. 1	3	0	81
El Paso.....	32	14. 2	22. 1	2	9	-----
Erie.....	24			4	1	25
Fall River.....	26	10. 1	13. 2	1	1	23
Flint.....	32	11. 2	11. 9	5	7	58
Fort Worth.....	28	8. 6	11. 9	2	5	-----
White.....	22			2	5	-----
Colored.....	6	(3)	(3)	0	0	-----
Grand Rapids.....	35	11. 1	12. 1	3	2	46
Houston.....	73			7	10	-----
White.....	46			5	6	-----
Colored.....	27	(3)	(3)	2	4	-----
Indianapolis.....	101	13. 8	15. 3	3	3	42
White.....	83			2	3	17
Colored.....	18	(3)	(3)	1	0	54
Jersey City.....	81	13. 0	16. 2	6	12	83

¹ Annual rate per 1,000 population.

² Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.

³ Data for 73 cities.

⁴ Deaths for week ended Friday.

⁵ In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 18; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

Deaths from all causes in certain large cities of the United States during the week ended March 15, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index, March 19, 1930, issued by the Bureau of the Census, Department of Commerce)—Continued

City	Week ended Mar. 15, 1930		Annual death rate per 1,000, corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Mar. 15, 1930 ²
	Total deaths	Death rate ¹		Week ended Mar. 15, 1930	Corresponding week, 1929	
Kansas City, Kans.	29	12.8	18.1	3	5	71
White	22			3	3	80
Colored	7	(³)	(³)	0	2	0
Kansas City, Mo.	113	15.1	20.8	7	28	54
Knoxville	28	13.9	12.9	3	5	70
White	20			3	5	78
Colored	8	(³)	(³)	0	0	0
Los Angeles	251			16	29	49
Louisville	69	10.9	14.9	2	6	17
White	47			2	5	20
Colored	22	(³)	(³)	0	1	0
Lowell	40			7	2	166
Lynn	24	11.0	11.4	2	2	51
Memphis	99	27.1	18.9	7	8	83
White	47			1	3	18
Colored	52	(³)	(³)	6	5	202
Milwaukee	104	10.0	13.1	12	23	60
Minneapolis	78	8.9	10.0	2	11	13
Nashville	53	19.8	23.2	6	5	93
White	29			6	2	123
Colored	24	(³)	(³)	0	3	0
New Bedford	33			4	4	103
New Haven	47	13.0	11.7	1	5	19
New Orleans	151	18.3	18.7	9	15	52
White	93			5	6	44
Colored	58	(³)	(³)	4	9	67
New York	1,634	14.2	14.9	180	186	76
Bronx Borough	217	11.9	13.1	22	21	52
Brooklyn Borough	608	13.7	12.2	72	61	77
Manhattan Borough	632	18.8	21.3	61	91	100
Queens Borough	123	7.5	10.1	19	10	55
Richmond Borough	54	18.7	20.4	6	3	112
Newark, N. J.	119	12.1	13.2	12	17	63
Oakland	71	13.5	12.6	7	3	84
Oklahoma City	32			3	4	59
Omaha	52	12.2	18.7	4	8	45
Paterson	33	11.9	12.2	4	2	70
Philadelphia	539	13.6	13.8	46	55	68
Pittsburgh	226	17.5	16.9	27	26	99
Portland, Oreg.	92			8	5	96
Providence	64	11.7	17.1	6	15	55
Richmond	64	17.2	19.0	1	6	15
White	35			1	4	22
Colored	29	(³)	(³)	0	2	0
Rochester	95	15.1	12.7	6	7	53
St. Louis	229	14.1	17.8	22	29	71
St. Paul	50			4	3	41
Salt Lake City	26	9.8	15.1	0	4	4
San Antonio	81	19.4	16.0	12	7	68
San Diego	47			3	3	45
San Francisco	173	15.4	14.0	7	8	94
Schenectady	32	17.9	11.2	3	1	119
Seattle	99	13.5	9.1	12	3	96
Somerville	24	12.2	11.2	3	1	68
Spokane	25	11.9	15.8	2	6	158
Springfield, Mass.	55	19.1	13.2	10	2	37
Syracuse	56	14.7	17.8	3	6	51
Tacoma	27	12.7	10.9	2	0	37
Toledo	59	14.8	13.7	4	4	37
Tranton	42	15.8	13.1	0	3	0
Utica	29	14.5	15.0	6	1	170
Washington, D. C.	147	13.9	17.1	13	14	104
White	98			10	2	86
Colored	49	(³)	(³)	3	12	142
Waterbury	29			4	6	362
Wilmington, Del.	31	12.6	10.6	3	3	68
Worcester	52	13.7	16.1	3	7	39
Yonkers	30	8.6	11.6	2	7	48
Youngstown	30	9.0	15.3	4	5	63

¹ Deaths for week ended Friday.

² In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended March 15, 1930, and March 16, 1929

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended March 15, 1930, and March 16, 1929

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Mar. 15, 1930	Week ended Mar. 16, 1929	Week ended Mar. 15, 1930	Week ended Mar. 16, 1929	Week ended Mar. 15, 1930	Week ended Mar. 16, 1929	Week ended Mar. 15, 1930	Week ended Mar. 16, 1929
New England States:								
Maine	1	4	7	25	73	237	0	2
New Hampshire	4	2	9	20	10	3	0	0
Vermont	4			8	38	19	0	0
Massachusetts	71	91	8	60	915	260	7	2
Rhode Island	25	10	2	6	1	53	0	0
Connecticut	15	17	14	51	16	553	0	2
Middle Atlantic States:								
New York	171	270	120	178	648	1,162	12	41
New Jersey	132	105	21	64	591	279	8	6
Pennsylvania	150	143			1,176	1,563	10	21
East North Central States:								
Ohio	78	90	61	114	626	2,009	15	10
Indiana	24	30		42	61	439	22	0
Illinois	172	139	59	64	614	1,312	10	11
Michigan	72	64	5	20	864	626	41	47
Wisconsin	18	20	44	122	947	563	2	21
West North Central States:								
Minnesota	17	27	2	1	244	592	6	1
Iowa	15	11			624	16	6	2
Missouri	46	66	19	41	75	516	18	26
North Dakota	4	11			32	94	3	3
South Dakota	1	11			112	46	1	1
Nebraska	28	14		9	490	43	3	2
Kansas	15	11	5	38	522	345	4	7
South Atlantic States:								
Delaware	2		2		11	62	0	0
Maryland	30	14	45	134	41	140	2	1
District of Columbia	17	16	2	5	14	19	0	0
West Virginia	15	10	33	27	90		1	1
North Carolina	37	23	17		28	86	0	3
South Carolina	18	14	914	811		10	2	0
Georgia	9	5	103	96	202	25	0	9
Florida	7	8	9	16	301	53	1	1
East South Central States:								
Kentucky					99	37	2	1
Tennessee	2	14	96	395	265	9	1	0
Alabama	21	8	93	146	156	48	4	3
Mississippi	9	6					21	4
West South Central States:								
Arkansas	7	5	12	202	28	190	5	3
Louisiana	17	17	34	27	161	157	0	5
Oklahoma	14	21	119	256	132	84	2	8
Texas	49	42	124	196	106	43	2	2
Mountain States:								
Montana		4			32	95	5	3
Idaho				10	24	1	2	13
Wyoming		3	1		6	61	1	0
Colorado	6	5	3		170	10	0	12
New Mexico	6	5		1	83	6	1	4
Arizona	9	5	8	7	7	57	3	15
Utah				7	244	2	6	9
Pacific States:								
Washington	9	4	2	1	252	100	2	7
Oregon	5	9	55	99	54	159	0	0
California	71	58	35	111	1,805	59	7	20

¹ New York City only.

² Week ended Friday.

³ Figures for 1930 are exclusive of Oklahoma City and Tulsa and for 1929 are exclusive of Oklahoma City only.

*Cases of certain communicable diseases reported by telegraph by State health officers
for weeks ended March 15, 1930, and March 16, 1929—Continued*

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Mar. 15, 1930	Week ended Mar. 16, 1929	Week ended Mar. 15, 1930	Week ended Mar. 16, 1929	Week ended Mar. 15, 1930	Week ended Mar. 16, 1929	Week ended Mar. 15, 1930	Week ended Mar. 16, 1929
New England States:								
Maine.....	0	0	32	47	0	4	0	1
New Hampshire.....	0	0	18	19	0	1	0	0
Vermont.....	0	0	8	12	1	4	0	0
Massachusetts.....	1	1	274	381	0	0	5	5
Rhode Island.....	0	0	32	23	0	0	0	0
Connecticut.....	1	0	123	68	0	9	3	0
Middle Atlantic States:								
New York.....	4	1	650	618	19	1	12	8
New Jersey.....	1	0	271	205	0	0	3	1
Pennsylvania.....	0	0	501	475	1	0	3	10
East North Central States								
Ohio.....	0	0	525	372	232	81	8	5
Indiana.....	0	0	199	355	114	83	3	3
Illinois.....	2	0	593	482	164	107	5	10
Michigan.....	0	1	364	530	39	47	2	4
Wisconsin.....	0	0	480	203	34	4	1	1
West North Central States.								
Minnesota.....	0	0	176	164	3	1	3	1
Iowa.....	0	0	99	235	93	43	0	2
Missouri.....	1	1	102	100	69	40	1	0
North Dakota.....	0	2	36	54	13	0	3	2
South Dakota.....	0	0	22	31	34	13	1	0
Nebraska.....	2	0	140	150	44	57	0	0
Kansas.....	0	0	153	166	63	50	1	1
South Atlantic States.								
Delaware.....	0	0	9	6	0	0	0	0
Maryland.....	0	0	89	66	0	0	3	5
District of Columbia.....	0	0	19	19	0	0	0	0
West Virginia.....	0	2	36	19	32	15	18	12
North Carolina.....	0	0	38	42	13	55	2	7
South Carolina.....	0	1	3	17	6	3	10	7
Georgia.....	0	0	18	12	0	4	1	0
Florida.....	0	1	2	12	0	0	2	6
East South Central States.								
Kentucky.....	1	0	60	51	4	39	4	1
Tennessee.....	1	0	51	69	12	5	2	2
Alabama.....	0	0	15	16	3	2	2	4
Mississippi.....	0	0	12	15	1	2	5	4
West South Central States:								
Arkansas.....	0	0	16	30	26	0	0	5
Louisiana.....	0	0	27	69	3	10	17	7
Oklahoma ¹	0	0	33	47	92	106	9	6
Texas.....	1	1	85	45	125	67	6	1
Mountain States.								
Montana.....	1	0	49	20	13	2	2	4
Idaho.....	0	0	28	4	9	15	0	1
Wyoming.....	0	0	22	6	12	3	0	0
Colorado.....	0	0	15	27	26	19	0	0
New Mexico.....	0	0	11	20	8	2	2	3
Arizona.....	0	0	9	0	32	19	2	3
Utah ¹	0	0	11	12	0	5	0	2
Pacific States:								
Washington.....	0	0	80	29	86	37	3	1
Oregon.....	0	0	29	48	31	43	0	1
California.....	3	3	214	507	92	60	8	6

¹ Week ended Friday.

¹ Figures for 1930 are exclusive of Oklahoma City and Tulsa and for 1929 are exclusive of Oklahoma City only.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Menin- gococ- cus menin- gitis	Diph- theria	Infu- enza	Ma- laria	Mea- sles	Pella- gra	Pollo- mye- litis	Scarlet fever	Small- pox	Ty- phoid fever
<i>December, 1929</i>										
Delaware		16	4		4		1	24	0	2
Nevada			8				2	11		1
<i>January, 1930</i>										
Delaware		27	2		5		0	90	0	2
South Carolina		185	4,066	553	38	185	6	95	8	29
<i>February, 1930</i>										
Alabama	12	117	713	81	385	15	3	109	18	15
Arkansas	14	23	587	24	35	17	1	80	63	18
Georgia	29	43	537	98	732	26	1	100	2	8
Massachusetts	17	302	30	1	2,008	1	2	1,179	1	14
New Hampshire		4	9				0	63	0	
New Jersey	26	448	82		1,714		3	1,016	0	6
North Dakota	8	10	10		247		3	148	136	1
Porto Rico		43	71	870	226	2	0		0	31
South Carolina		97	3,965	483	28	226	1	72	7	18
Vermont		5			44		0	47	14	1
Wyoming	2	7	4		99		0	30	33	1

<i>December, 1929</i>		<i>Whooping cough</i>		<i>Cases</i>	
Chicken pox:		Delaware			31
Delaware	51	South Carolina			468
Mumps:		<i>February, 1930</i>			
Delaware	4	Anthrax:			
Nevada	3	New Jersey			1
Undulant fever:		Porto Rico			1
Delaware	1	Chicken pox:			
Whooping cough:		Alabama			414
Delaware	13	Arkansas			255
<i>January, 1930</i>		Georgia			155
Chicken pox:		Massachusetts			1,024
Delaware	96	New Jersey			1,312
South Carolina	309	North Dakota			129
Dengue:		South Carolina			284
South Carolina	7	Vermont			251
Diarrhea		Wyoming			10
South Carolina	355	Colibacillosis:			
Hookworm disease:		Porto Rico			1
South Carolina	91	Dengue			
Mumps:		Georgia			1
Delaware	3	Diarrhea:			
South Carolina	181	South Carolina			434
Ophthalmia neonatorum:		Dysentery:			
South Carolina	12	Georgia			12
Paratyphoid fever:		Massachusetts			3
South Carolina	3	Porto Rico			27
Rabies in animals:		Filariasis:			
South Carolina	8	Porto Rico			4
Tetanus:		German measles:			
South Carolina	1	Massachusetts			234
Tularaemia:		New Jersey			624
South Carolina	1	Hookworm disease:			
Typhus fever:		Arkansas			4
South Carolina	1	Georgia			24
Undulant fever:		South Carolina			77
Delaware	1				

February, 1930—Continued		Cases	Septic sore throat:	Cases
Lead poisoning.			Georgia.....	23
Massachusetts.....	4		Massachusetts.....	19
New Jersey.....	12		Tetanus:	
Leprosy:			Massachusetts.....	1
Porto Rico.....	2		Porto Rico.....	4
Lethargic encephalitis:			Tetanus (infantile):	
Alabama.....	8		Porto Rico.....	23
Massachusetts.....	7		Trachoma:	
North Dakota.....	2		Massachusetts.....	9
South Carolina.....	1		Porto Rico.....	5
Mumps:			Trichinosis:	
Alabama.....	77		Georgia.....	1
Arkansas.....	172		Massachusetts.....	5
Georgia.....	155		New Jersey.....	4
Massachusetts.....	876		Tularaemia:	
North Dakota.....	226		Alabama.....	1
Porto Rico.....	11		Georgia.....	5
South Carolina.....	148		South Carolina.....	3
Vermont.....	5		Typhus fever.	
Wyoming.....	67		Alabama.....	2
Ophthalmia neonatorum:			Georgia.....	6
Arkansas.....	1		Undulant fever:	
Massachusetts.....	182		Alabama.....	1
New Jersey.....	3		Wyoming.....	1
Porto Rico.....	2		Vincent's angina:	
South Carolina.....	8		North Dakota.....	11
Paratyphoid fever:			Whooping cough:	
South Carolina.....	6		Alabama.....	204
Puerperal fever:			Arkansas.....	32
Porto Rico.....	8		Georgia.....	109
Rabies in animals:			Massachusetts.....	1,337
South Carolina.....	11		New Jersey.....	586
Rabies in man:			North Dakota.....	69
Alabama.....	1		Porto Rico.....	105
Scabies:			South Carolina.....	523
North Dakota.....	22		Vermont.....	32
			Wyoming.....	20

Cases of Certain Communicable Diseases Reported for the month of December, 1929, by State Health Officers

State	Chicken pox	Diph- theria	Measles	Mumps	Scarlet fever	Small- pox	Tuber- culosis	Typhoid and para- typhoid fever	Whoop- ing cough
Maine.....	316	14	30	125	172	0	59	12	96
New Hampshire.....		17			76	0		0	
Vermont.....	177	11	120	7	76	22	12	1	93
Massachusetts.....	1,425	517	681	562	1,177	0	57	27	960
Rhode Island.....	56	36	5		72	0	42	2	34
Connecticut.....	706	106	45	114	321	0	109	10	189
New York.....	2,895	748	1,173	1,204	1,527	35	1,363	47	1,232
New Jersey.....	1,401	560	310		735	0	385	19	513
Pennsylvania.....	3,972	675	1,666	867	1,550	15	370	61	1,303
Ohio.....	3,255	362	1,996	369	1,235	753	631	53	615
Indiana.....	548	123	92	21	521	653	195	8	74
Illinois.....	2,290	980	1,525	603	2,333	520	736	39	860
Michigan.....	1,858	488	593	455	1,142	257	544	12	424
Wisconsin.....	1,721	68	2,117	334	416	175	137	20	580
Minnesota.....	1,642	123	795		529	75	142	26	216
Iowa.....		48			209	440		16	
Missouri.....	396	207	207	55	420	146	151	23	94
North Dakota.....	151	22	132	53	145	53	180	2	17
South Dakota.....	164	14	52	43	131	180	7	4	36
Nebraska.....	187	88	558	68	219	195	8	2	73
Kansas.....	746	118	457	244	528	172	144	14	190

Cases of Certain Communicable Diseases Reported for the month of December, 1929, by State Health Officers—Continued

State	Chicken pox	Diph- theria	Measles	Mumps	Scarlet fever	Small- pox	Tuber- culosis	Typhoid and para- typhoid fever	Whoop- ing cough
Delaware.....	51	16	4	4	24	0	1 15	2	13
Maryland.....	420	111	60	40	316	0	130	29	164
District of Columbia.....	95	47	3	-----	75	0	77	2	19
Virginia.....	576	338	204	-----	387	27	119	26	976
West Virginia.....	275	73	402	-----	225	65	27	30	151
North Carolina.....	745	441	21	-----	363	48	-----	36	789
South Carolina.....	162	337	16	44	106	7	95	36	276
Georgia.....	132	89	90	54	119	2	47	10	56
Florida.....	103	55	31	88	42	12	16	8	30
Kentucky ¹	-----	-----	-----	-----	-----	-----	-----	-----	-----
Tennessee.....	143	109	77	12	156	43	162	38	77
Alabama.....	83	211	32	21	130	11	781	40	97
Mississippi.....	973	193	323	165	143	3	243	37	845
Arkansas.....	140	57	200	46	112	41	9	23	97
Louisiana.....	66	109	58	2	76	4	192	36	8
Oklahoma ¹	86	191	88	7	194	262	46	37	41
Texas ²	-----	-----	-----	-----	-----	-----	-----	-----	-----
Montana.....	70	13	117	497	173	68	11	9	34
Idaho.....	180	4	461	115	118	138	13	5	50
Wyoming.....	39	20	12	65	22	50	2	2	7
Colorado.....	549	51	75	115	180	105	126	9	106
New Mexico.....	84	79	12	27	46	8	51	14	10
Arizona.....	93	51	8	333	36	28	197	11	30
Utah ³	-----	-----	-----	-----	-----	-----	-----	-----	-----
Nevada.....	-----	-----	-----	3	11	-----	1 2	1	-----
Washington.....	791	63	183	339	240	363	126	15	78
Oregon.....	223	32	98	63	156	53	49	7	42
California.....	1,362	363	990	1,363	1,268	253	691	31	342

Case Rates per 1,000 Population (Annual Basis) for the Month of December, 1929

State	Chicken pox	Diph- theria	Measles	Mumps	Scarlet fever	Small- pox	Tuber- culosis	Typhoid and para- typhoid fever	Whoop- ing cough
Maine.....	4.67	0.21	0.44	1.85	2.54	.00	0.87	0.18	1.42
New Hampshire.....	-----	.44	-----	-----	1.96	.00	-----	.00	-----
Vermont.....	2.91	.37	4 01	.23	2.54	.73	.40	.03	3.11
Massachusetts.....	3.87	1.40	1.85	1.53	3.19	.00	.15	.07	2.61
Rhode Island.....	.91	.58	.08	-----	1.16	.00	.68	.03	.85
Connecticut.....	4.90	.74	.31	.79	2.23	.00	.76	.07	1.31
New York.....	2.92	.75	1 18	1.21	1.54	.04	1.37	.06	1.24
New Jersey.....	4.24	1.69	.94	-----	2.22	.00	1.16	.06	1.56
Pennsylvania.....	4.09	.80	1.97	1.01	1.83	.02	.44	.07	1.64
Ohio.....	5.52	.61	3.39	.63	2.09	1.28	1.07	.09	1.04
Indiana.....	2.01	.45	.34	.08	1.92	2.40	.72	.03	.27
Illinois.....	3.60	1.54	2.40	.95	3.07	.82	1.16	.06	1.35
Michigan.....	4.66	1.22	1.49	1.14	2.87	.64	1.36	.03	1.06
Wisconsin.....	6.78	.27	8.34	1.32	1.64	.69	.54	.08	2.29
Minnesota.....	7.01	.53	3.39	-----	2.26	.32	.61	.11	.62
Iowa.....	-----	.23	-----	-----	1.45	2.13	-----	.08	-----
Missouri.....	1.32	.69	.69	.18	1.40	.49	.50	.08	.31
North Dakota.....	2.77	.40	2.42	.97	2.66	.97	3.31	.04	.39
South Dakota.....	2.71	.23	.86	.71	2.17	3.13	.12	.07	.60
Nebraska.....	1.55	.73	4.71	.56	1.82	1.62	.07	.02	.61
Kansas.....	4.77	.75	2.92	1.56	3.37	1.10	.92	.09	1.21

¹ Pulmonary.² Reports received weekly.³ Exclusive of Oklahoma City and Tulsa.

Case Rates per 1,000 Population (Annual Basis) for the Month of December, 1929—Continued

State	Chicken pox	Diph- theria	Measles	Mumps	Scarlet fever	Small- pox	Tuber- culosis	Typhoid and para- typhoid fever	Whoop- ing cough
Delaware.....	2.45	0.77	0.19	0.19	1.15	0.00	1 0.72	0.10	0.62
Maryland.....	3.02	.80	.48	.33	2.28	.00	.94	.21	1.18
District of Columbia.....	1.98	.98	.06	-----	1.57	.00	1.61	.04	.40
Virginia.....	2.60	1.53	.92	-----	1.66	.12	.54	.12	4.41
West Virginia.....	1.85	.49	2 70	-----	1.51	.44	.18	.20	1.01
North Carolina.....	2.94	1.74	.08	-----	1.43	.19	-----	.14	3.12
South Carolina.....	1.01	2.11	.10	.28	.68	.04	.59	.23	1.73
Georgia.....	.48	.32	.33	.20	.43	.01	.17	.04	.20
Florida.....	.83	.44	.25	.71	.34	.10	.13	.06	.24
Kentucky ¹	-----	-----	-----	-----	-----	-----	-----	-----	-----
Tennessee.....	.67	.51	.36	.06	.73	.20	.76	.18	.36
Alabama.....	.38	.97	.15	.10	.59	.05	.82	.18	.44
Mississippi.....	6.40	1 27	2.12	1.08	.94	.02	1.60	.24	5.56
Arkansas.....	.84	.34	1.25	.28	.67	.25	.05	.14	.58
Louisiana.....	.40	1.19	.35	.01	.46	.02	1.15	.22	.05
Oklahoma ¹.....	.47	1.04	.48	.04	1.05	1.42	.25	.20	.22
Texas ²	-----	-----	-----	-----	-----	-----	-----	-----	-----
Montana.....	1.50	.28	2.51	10 66	3.71	1.46	.24	.19	.73
Idaho.....	3.80	.08	9.73	2.43	2.40	2.91	.27	.11	1.06
Wyoming.....	1 81	.93	.56	3.02	1.02	2 33	.09	.09	.33
Colorado.....	5.84	.54	.80	1.22	1 92	1 12	1 34	.10	1.13
New Mexico.....	2.47	2.33	.35	.79	1.35	.24	1.50	.41	.29
Arizona.....	2.24	1.23	.19	8.02	.87	.67	4.71	.26	.72
Utah ¹	-----	-----	-----	-----	-----	-----	-----	-----	-----
Nevada.....	-----	-----	-----	.46	1.67	-----	1 30	.15	-----
Washington.....	5.78	.46	1.34	2.48	1.75	2 65	.92	.11	.57
Oregon.....	2.87	.41	1 26	.81	2 01	.68	.63	.09	.54
California.....	3.43	.91	2.49	3 43	3.19	.64	1 74	.08	.86

¹ Pulmonary.² Reports received weekly.³ Exclusive of Oklahoma City and Tulsa.

RECIPROCAL NOTIFICATIONS

Notifications regarding communicable diseases sent during the month of January, 1930, by departments of health of certain States to other State health departments

Disease	Califor- nia	Illinois	Kansas	Minne- sota	New York	Ohio
Chicken pox.....	-----	1	-----	-----	1	-----
Diphtheria.....	-----	-----	-----	-----	2	-----
Gonorrhea.....	-----	-----	-----	2	-----	-----
Meningitis, epidemic.....	-----	2	-----	-----	-----	-----
Pollomyelitis.....	-----	1	-----	-----	-----	-----
Scarlet fever.....	-----	1	-----	3	2	-----
Smallpox.....	-----	6	-----	1	2	-----
Syphilis.....	-----	-----	3	-----	-----	-----
Tuberculosis.....	-----	19	-----	31	-----	1
Tularaemia.....	-----	1	-----	-----	-----	-----
Typhoid fever.....	2	1 1	-----	1	2	-----
Undulant fever.....	-----	-----	-----	-----	2	-----

¹ Carrier.

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 97 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 32,080,000. The estimated population of the 90 cities reporting deaths is more than 30,485,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended March 8, 1930, and March 9, 1929

	1930	1929	Estimated expectancy
<i>Cases reported</i>			
Diphtheria:			
46 States.....	1, 295	1, 730	-----
97 cities.....	553	808	922
Measles:			
45 States.....	12, 540	11, 667	-----
97 cities.....	3, 914	3, 263	-----
Meningococcus meningitis:			
46 States.....	310	297	-----
97 cities.....	123	164	-----
Poliomyelitis:			
47 States.....	19	20	-----
Scarlet fever:			
46 States.....	5, 328	5, 556	-----
97 cities.....	2, 027	1, 808	1, 610
Smallpox:			
46 States.....	1, 822	1, 264	-----
97 cities.....	155	72	85
Typhoid fever:			
46 States.....	206	159	-----
97 cities.....	52	32	29
<i>Deaths reported</i>			
Influenza and pneumonia			
90 cities.....	1, 089	1, 367	-----
Smallpox:			
90 cities.....	0	0	-----

City reports for week ended March 8, 1930

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during non-epidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1921 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Chick- en pox, cases re- ported	Diphtheria		Influenza		Meas- les, cases re- ported	Mumps, cases re- ported	Pneu- monia, deaths, re- ported
		Cases, esti- mated expect- ancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND								
Maine:								
Portland.....	21	1	0	-----	0	0	15	5
New Hampshire:								
Concord.....	0	0	0	-----	0	6	0	3
Nashua.....	0	0	0	-----	0	0	0	0
Vermont:								
Barre.....	11	0	0	-----	0	0	0	0
Burlington.....	0	0	0	-----	0	1	0	2
Massachusetts:								
Boston.....	51	39	16	1	1	143	93	84
Fall River.....	5	4	5	2	2	0	0	4
Springfield.....	14	4	0	-----	0	1	1	2
Worcester.....	9	3	1	-----	0	88	0	7
Rhode Island:								
Pawtucket.....	12	1	2	-----	0	0	0	3
Providence.....	6	8	11	-----	1	1	0	10
Connecticut:								
Bridgeport.....	2	7	0	4	4	1	0	7
Hartford.....	4	6	2	5	0	5	0	9
New Haven.....	63	1	1	-----	0	0	10	7

City reports for week ended March 8, 1930—Continued

Division, State, and city	Chick- en pox, cases re- ported	Diphtheria		Influenza		Meas- les, cases re- ported	Mumps, cases re- ported	Pneu- monia, deaths, re- ported
		Cases, esti- mated expect- ancy	Cases reported	Cases reported	Deaths reported			
MIDDLE ATLANTIC								
New York:								
Buffalo.....	32	13	13	-----	0	5	7	16
New York.....	244	226	97	24	14	295	196	225
Rochester.....	21	8	1	-----	0	10	0	1
Syracuse.....	32	4	0	-----	1	7	86	6
New Jersey:								
Camden.....	2	6	4	-----	0	0	0	3
Newark.....	50	15	23	9	2	277	18	12
Trenton.....	13	3	5	-----	0	38	0	6
Pennsylvania:								
Philadelphia.....	92	70	21	9	6	91	72	83
Pittsburgh.....	31	20	22	2	5	191	11	45
Reading.....	13	3	1	-----	0	0	0	3
Scranton.....	9	4	4	-----	-----	3	0	-----
EAST NORTH CENTRAL								
Ohio:								
Cincinnati.....	16	10	0	-----	3	19	0	17
Cleveland.....	126	28	10	21	2	2	28	80
Columbus.....	11	4	1	4	3	60	18	10
Toledo.....	40	6	3	2	2	206	29	8
Indiana:								
Fort Wayne.....	3	3	4	-----	0	1	0	4
Indianapolis.....	20	7	0	-----	0	10	0	15
South Bend.....	6	2	0	-----	0	1	0	3
Terre Haute.....	4	0	0	-----	0	0	0	1
Illinois:								
Chicago.....	137	96	86	7	5	27	51	72
Springfield.....	27	0	0	1	1	0	1	0
Michigan:								
Detroit.....	97	54	46	2	4	549	55	53
Flint.....	29	2	2	-----	0	6	4	7
Grand Rapids.....	1	2	0	-----	1	0	2	3
Wisconsin:								
Kenosha.....	5	0	0	-----	0	1	0	0
Madison.....	3	0	0	-----	-----	47	0	-----
Milwaukee.....	200	17	3	1	1	17	77	12
Racine.....	2	2	0	-----	0	0	0	0
Superior.....	1	0	0	-----	0	20	1	0
WEST NORTH CENTRAL								
Minnesota:								
Duluth.....	3	0	0	-----	0	78	0	1
Minneapolis.....	24	14	0	-----	0	34	60	8
St. Paul.....	21	9	0	-----	0	7	18	6
Iowa:								
Davenport.....	2	0	0	-----	-----	6	2	-----
Des Moines.....	1	2	2	-----	-----	46	1	-----
Sioux City.....	4	1	1	-----	-----	52	3	-----
Waterloo.....	0	1	1	-----	-----	111	0	-----
Missouri:								
Kansas City.....	43	6	4	1	0	11	0	15
St. Joseph.....	1	1	1	-----	0	0	0	3
St. Louis.....	30	43	35	4	-----	5	17	-----
North Dakota:								
Fargo.....	2	0	0	-----	0	0	23	1
Grand Forks.....	0	0	0	-----	-----	0	0	-----
South Dakota:								
Aberdeen.....	23	0	0	-----	-----	1	1	-----
Sioux Falls.....	0	1	0	-----	-----	4	0	-----
Nebraska:								
Omaha.....	15	3	17	-----	0	64	0	4
Kansas:								
Topeka.....	30	1	2	1	1	108	9	1
Wichita.....	31	2	0	-----	0	14	3	4

City reports for week ended March 8, 1930—Continued

Division, State, and city	Chick- en pox, cases re- ported	Diphtheria		Influenza		Meas- les, cases re- ported	Mumps, cases re- ported	Pneu- monia, deaths, re- ported
		Cases, esti- mated expect- ancy	Cases reported	Cases reported	Deaths reported			
SOUTH ATLANTIC								
Delaware:								
Wilmington.....	4	2	1	1	0	2	0	11
Maryland:								
Baltimore.....	174	25	20	21	4	1	6	41
Cumberland.....	4	1	1	-----	0	0	0	1
Frederick.....	0	0	0	-----	0	0	0	0
District of Columbia:								
Washington.....	22	14	8	5	4	11	0	11
Virginia:								
Lynchburg.....	15	1	2	-----	1	151	16	2
Norfolk.....	17	1	1	-----	0	1	33	7
Richmond.....	2	2	0	-----	1	0	3	8
Roanoke.....	3	1	0	-----	0	21	1	9
West Virginia:								
Charleston.....	23	0	0	1	0	8	0	2
Wheeling.....	7	1	0	-----	1	1	0	0
North Carolina:								
Raleigh.....	1	0	0	-----	0	0	0	0
Wilmington.....	14	0	0	-----	1	0	0	0
Winston-Salem.....	-----	1	-----	-----	-----	-----	-----	-----
South Carolina:								
Charleston.....	9	0	0	50	1	0	3	7
Columbia.....	11	0	1	-----	0	0	10	3
Georgia:								
Atlanta.....	9	4	2	11	4	29	24	6
Brunswick.....	0	0	0	-----	0	0	0	1
Savannah.....	2	0	0	10	0	0	0	1
Florida:								
Miami.....	6	3	2	-----	0	2	3	1
St. Petersburg.....	-----	0	-----	-----	1	-----	-----	4
Tampa.....	5	0	4	-----	0	43	28	3
EAST SOUTH CENTRAL								
Kentucky:								
Covington.....	2	1	0	-----	0	0	0	1
Tennessee:								
Memphis.....	21	4	0	-----	1	2	15	13
Nashville.....	5	1	1	-----	3	0	0	4
Alabama:								
Birmingham.....	15	2	3	7	4	3	1	12
Mobile.....	1	1	2	1	1	6	0	3
Montgomery.....	13	1	0	3	-----	109	1	-----
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith.....	1	1	0	-----	-----	0	0	-----
Little Rock.....	26	0	0	-----	0	0	1	2
Louisiana:								
New Orleans.....	1	13	18	12	6	43	0	14
Shreveport.....	2	0	0	-----	0	0	16	5
Texas:								
Dallas.....	13	5	8	-----	0	100	1	4
Fort Worth.....	28	4	0	-----	2	2	0	4
Galveston.....	1	1	1	-----	0	0	0	1
Houston.....	5	5	12	-----	0	1	2	5
San Antonio.....	0	3	2	-----	3	1	0	14
MOUNTAIN								
Montana:								
Billings.....	0	1	0	-----	1	0	8	0
Great Falls.....	1	0	0	-----	0	0	21	3
Helena.....	0	0	0	-----	0	0	11	0
Missoula.....	0	0	0	-----	0	0	0	0
Idaho:								
Boise.....	0	0	0	-----	0	0	0	0
Colorado:								
Denver.....	57	10	8	-----	1	146	27	9
Fueblo.....	18	1	0	-----	1	1	56	1
New Mexico:								
Albuquerque.....	1	1	1	-----	0	10	13	0

City reports for week ended March 8, 1930—Continued

Division, State, and city	Chick- en pox, cases re- ported	Diphtheria		Influenza		Meas- les, cases re- ported	Mumps, cases re- ported	Pneu- monia, deaths, re- ported
		Cases, esti- mated expect- ancy	Cases reported	Cases reported	Deaths reported			
MOUNTAIN—Con.								
Arizona								
Phoenix	6	0	0	-----	0	0	0	3
Utah								
Salt Lake City...	14	2	2	-----	1	91	7	3
Nevada								
Reno.....	0	1	0	-----	0	1	0	1
PACIFIC								
Washington:								
Seattle.....	57	5	1	-----	-----	91	84	-----
Spokane.....	21	2	1	-----	-----	1	0	-----
Tacoma.....	14	1	0	-----	0	16	0	3
Oregon.								
Portland.....	13	8	1	3	1	6	22	7
Salem	6	0	0	-----	0	0	19	0
California.								
Los Angeles ..	111	40	9	28	0	258	57	14
Sacramento ..	11	2	1	-----	0	3	39	8
San Francisco	46	18	7	-----	1	412	80	5

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
NEW ENGLAND											
Maine:											
Portland	4	4	0	0	0	1	0	0	0	7	20
New Hampshire:											
Concord	1	1	0	0	0	0	0	0	0	0	13
Nashua	0	0	0	0	0	0	0	0	0	0	-----
Vermont:											
Barre	0	0	0	1	0	0	0	0	0	0	5
Burlington	0	0	0	0	0	0	0	0	0	0	12
Massachusetts:											
Boston	85	85	0	0	0	15	2	1	0	62	230
Fall River	5	2	0	0	0	1	0	0	0	2	31
Springfield	9	14	0	0	0	2	0	0	0	35	43
Worcester	9	9	0	0	0	4	0	0	0	11	76
Rhode Island:											
Pawtucket	2	4	0	0	0	0	0	0	0	13	26
Providence	11	14	0	0	0	3	0	0	0	50	91
Connecticut:											
Bridgeport	12	23	0	0	0	4	0	0	0	0	44
Hartford	6	7	0	0	0	3	0	0	0	3	45
New Haven	10	15	0	0	0	1	0	0	0	14	45
MIDDLE ATLANTIC											
New York:											
Buffalo	28	41	0	0	0	5	0	2	0	19	153
New York	363	287	0	0	0	87	7	4	1	65	1,610
Rochester	12	6	0	0	0	2	0	0	0	1	84
Syracuse	12	40	0	0	0	0	0	0	0	84	51
New Jersey:											
Camden	6	3	0	0	0	2	0	0	0	0	33
Newark	43	48	0	0	0	9	0	1	0	25	120
Trenton	5	15	0	0	0	1	1	1	0	4	39
Pennsylvania:											
Philadelphia	97	150	0	0	0	34	2	0	0	17	422
Pittsburgh	33	30	0	0	0	18	0	0	0	42	215
Reading	7	4	0	0	0	2	0	0	0	15	24
Scranton	3	6	0	0	-----	-----	0	0	-----	0	-----

City reports for week ended March 8, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
EAST NORTH CENTRAL											
Ohio:											
Cincinnati.....	22	21	1	4	0	7	0	0	0	1	147
Cleveland.....	50	79	0	0	0	18	1	2	1	100	232
Columbus.....	11	10	1	8	0	6	0	1	0	8	84
Toledo.....	14	13	0	9	0	5	1	1	0	7	71
Indiana:											
Fort Wayne.....	5	3	1	9	0	4	0	1	0	1	87
Indianapolis.....	14	26	10	10	0	9	1	0	0	2	-----
South Bend.....	3	10	1	1	0	2	0	0	0	0	24
Terre Haute.....	3	4	0	0	0	1	0	0	0	0	15
Illinois:											
Chicago.....	134	328	2	1	0	51	2	1	0	55	767
Springfield.....	4	2	0	1	0	1	0	0	0	7	21
Michigan:											
Detroit.....	120	161	2	3	0	31	0	0	0	32	245
Flint.....	13	28	2	1	0	2	0	0	0	14	87
Grand Rapids.....	11	3	0	0	0	2	0	0	0	9	45
Wisconsin:											
Kenosha.....	3	8	1	0	0	0	0	0	0	2	-----
Madison.....	5	6	0	1	-----	-----	0	0	-----	18	-----
Milwaukee.....	39	36	0	0	0	6	0	0	0	47	-----
Racine.....	5	1	0	0	0	3	0	0	0	4	20
Superior.....	4	2	0	0	0	3	1	0	0	0	17
WEST NORTH CENTRAL											
Minnesota:											
Duluth.....	10	2	0	8	0	1	0	3	0	15	22
Minneapolis.....	60	23	3	0	0	5	0	0	0	7	104
St. Paul.....	34	25	1	0	0	1	0	0	0	18	66
Iowa:											
Davenport.....	2	1	0	8	-----	-----	0	0	-----	0	-----
Des Moines.....	9	26	1	8	-----	-----	0	0	-----	0	42
Sioux City.....	1	3	1	1	-----	-----	0	0	-----	9	-----
Waterloo.....	3	2	1	17	-----	-----	0	0	-----	0	-----
Missouri:											
Kansas City.....	21	48	3	0	0	6	0	0	0	12	106
St. Joseph.....	2	3	0	1	0	0	0	0	0	0	28
St. Louis.....	37	31	2	4	0	9	1	1	1	6	249
North Dakota:											
Fargo.....	1	3	0	0	0	0	0	0	0	16	5
Grand Forks.....	0	5	0	5	-----	-----	0	0	-----	0	-----
South Dakota:											
Aberdeen.....	3	0	0	0	-----	-----	0	0	-----	7	-----
Sioux Falls.....	2	2	0	5	-----	-----	0	0	-----	0	12
Nebraska:											
Omaha.....	4	7	2	5	0	3	0	0	0	4	60
Kansas:											
Topoka.....	2	3	1	5	0	1	0	0	0	15	17
Wichita.....	5	28	2	0	0	2	0	0	0	1	32
SOUTH ATLANTIC											
Delaware:											
Wilmington.....	6	8	0	0	0	0	0	0	0	4	35
Maryland:											
Baltimore.....	34	48	0	0	0	16	1	3	0	20	275
Cumberland.....	0	2	0	0	0	0	0	0	0	0	14
Frederick.....	1	0	0	0	0	0	0	0	0	0	5
District of Col.:											
Washington.....	28	11	1	0	0	12	0	0	0	7	151
Virginia:											
Lynchburg.....	0	1	0	1	0	0	0	0	0	6	12
Norfolk.....	2	1	0	0	0	3	0	0	0	4	-----
Richmond.....	3	12	0	0	0	6	0	1	0	1	56
Roanoke.....	1	0	0	0	0	2	0	0	0	0	31
West Virginia:											
Charleston.....	1	0	0	0	0	0	0	13	0	11	17
Wheeling.....	2	1	0	0	0	2	1	0	0	1	11
North Carolina:											
Raleigh.....	1	0	0	0	0	0	0	0	0	1	12
Wilmington.....	0	0	1	0	0	1	0	0	0	10	18
Winston-Salem.....	1	-----	1	-----	-----	-----	0	-----	-----	-----	-----

City reports for week ended March 8, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- cul- osis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
SOUTH ATLANTIC— continued											
South Carolina:											
Charleston.....	1	2	1	0	0	2	0	1	0	5	32
Columbia.....	0	0	0	0	0	2	0	0	0	17	18
Georgia:											
Atlanta.....	5	15	4	0	0	2	1	0	0	6	95
Brunswick.....	0	0	0	0	0	1	0	0	0	0	5
Savannah.....	1	3	1	0	0	2	0	0	0	0	34
Florida:											
Miami.....	1	2	1	0	0	1	0	0	0	0	40
St. Petersburg.....	0	0	0	0	0	0	0	0	0	25	
Tampa.....	0	0	0	0	0	2	1	2	0	3	33
EAST SOUTH CENTRAL											
Kentucky:											
Covington.....	2	1	0	0	0	0	0	0	0	0	19
Tennessee:											
Memphis.....	7	18	2	0	0	6	0	1	0	10	100
Nashville.....	4	3	1	3	0	8	0	0	0	4	51
Alabama:											
Birmingham.....	3	4	5	0	0	3	0	1	0	2	67
Mobile.....	0	1	0	0	0	0	0	0	0	0	21
Montgomery.....	1	2	1	0	0	0	0	0	0	0	
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith.....	1	1	0	0	0	0	0	0	0	1	
Little Rock.....	2	1	0	2	0	1	0	0	0	0	
Louisiana:											
New Orleans.....	7	13	0	0	0	18	2	6	1	2	182
Shreveport.....	1	4	1	0	0	0	0	1	0	7	33
Texas:											
Dallas.....	5	9	5	0	0	3	0	0	0	0	52
Fort Worth.....	1	2	1	3	0	1	0	0	0	0	35
Galveston.....	0	0	0	0	0	1	0	0	1	0	16
Houston.....	1	9	2	7	0	4	0	2	0	0	70
San Antonio.....	1	3	0	9	0	18	0	0	0	0	91
MOUNTAIN											
Montana:											
Billings.....	1	0	0	0	0	0	0	0	0	0	5
Great Falls.....	2	18	1	0	0	0	0	0	0	0	8
Helena.....	0	0	0	0	0	0	0	0	0	1	3
Missoula.....	1	3	0	0	0	0	0	0	0	0	1
Idaho:											
Boise.....	0	0	1	0	0	0	0	0	0	0	7
Colorado:											
Denver.....	15	9	0	0	0	5	0	0	0	18	98
Pueblo.....	1	0	0	0	0	1	1	0	0	0	10
New Mexico:											
Albuquerque.....	0	2	0	0	0	6	0	0	0	0	13
Arizona:											
Phoenix.....	0	0	0	20	0	0	0	0	0	0	15
Utah:											
Salt Lake City.....	4	3	1	0	0	0	0	0	0	22	32
Nevada:											
Reno.....	0	1	0	1	0	1	0	0	0	0	4
PACIFIC											
Washington:											
Seattle.....	10	20	3	6	0	0	1	0	0	10	
Spokane.....	7	0	9	27	0	0	0	0	0	5	
Tacoma.....	3	3	3	8	0	0	1	0	0	1	39
Oregon:											
Portland.....	7	0	14	9	0	2	1	1	0	12	68
Salem.....	1	0	0	0	0	0	0	0	0	9	
California:											
Los Angeles.....	38	55	2	3	0	35	1	1	1	17	271
Sacramento.....	3	7	1	7	0	5	1	1	0	1	81
San Francisco.....	25	34	1	1	0	8	0	1	0	2	174

City reports for week ended March 8, 1930—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomylitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Massachusetts:									
Boston.....	4	1	0	0	0	0	0	0	0
Worcester.....	0	0	1	1	0	0	0	0	0
Connecticut:									
Hartford.....	1	0	0	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
Buffalo.....	2	2	0	0	0	0	0	0	0
New York 1.....	20	10	3	1	0	0	1	0	0
New Jersey:									
Newark.....	0	1	0	0	0	0	0	0	0
Pennsylvania:									
Philadelphia.....	1	2	1	2	0	0	0	0	0
Pittsburgh.....	3	2	0	0	0	0	1	0	0
EAST NORTH CENTRAL									
Ohio:									
Cincinnati.....	0	1	0	0	0	0	0	0	0
Cleveland.....	1	1	0	0	0	0	0	0	0
Columbus.....	0	0	0	0	0	0	0	1	0
Toledo.....	1	0	0	0	0	0	0	0	0
Indiana:									
Fort Wayne.....	1	1	0	0	0	0	0	0	0
Indianapolis.....	10	0	0	0	0	0	0	0	0
Illinois:									
Chicago.....	13	6	2	1	0	0	0	1	1
Springfield.....	0	0	0	0	0	0	0	1	1
Michigan:									
Detroit.....	27	8	0	1	0	0	1	0	0
Flint.....	1	0	0	0	0	0	0	0	0
Wisconsin:									
Madison.....	1	—	0	—	0	—	0	0	—
Superior.....	0	1	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
Minneapolis.....	4	0	0	0	0	0	0	0	0
Iowa:									
Davenport.....	0	—	0	—	0	—	0	1	—
Waterloo.....	3	1	0	0	0	0	0	0	0
Missouri:									
Kansas City.....	3	3	0	0	0	0	0	0	0
St. Joseph.....	1	0	0	0	0	0	0	0	0
St. Louis.....	9	4	0	0	0	0	0	0	0
North Dakota:									
Fargo.....	3	1	0	0	0	0	0	0	0
SOUTH ATLANTIC									
Delaware:									
Wilmington.....	1	0	0	0	0	0	0	0	0
Maryland:									
Baltimore.....	1	2	0	0	0	0	0	0	0
Frederick.....	1	1	0	0	0	0	0	0	0
District of Columbia:									
Washington.....	2	0	0	0	0	0	0	0	0
Virginia:									
Richmond.....	0	1	0	0	0	0	0	0	0
North Carolina:									
Raleigh.....	0	0	0	0	1	2	0	0	0
Wilmington.....	0	0	0	0	1	0	0	0	0
South Carolina:									
Charleston.....	0	0	0	0	4	0	0	0	0
Georgia:									
Atlanta.....	0	3	0	0	0	0	0	0	0
Savannah.....	0	0	0	0	1	1	0	0	0
Florida:									
Miami.....	0	0	0	0	1	0	0	0	0
Tampa 1.....	0	0	0	0	0	1	0	0	0

1 Typhus fever: 1 death at New York City, N. Y., and 1 case at Tampa, Fla.

City reports for week ended March 8, 1930—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Polioomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
EAST SOUTH CENTRAL									
Tennessee:									
Memphis.....	10	5	0	0	0	0	0	0	0
Nashville.....	0	0	1	0	0	0	0	0	0
Alabama:									
Birmingham.....	0	0	0	0	1	1	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Little Rock.....	0	0	0	0	0	1	0	0	0
Louisiana:									
New Orleans.....	3	2	0	0	4	0	0	0	0
Texas:									
Dallas.....	0	0	0	0	0	1	0	1	0
Houston.....	0	0	0	0	0	3	0	0	0
MOUNTAIN									
Colorado:									
Denver.....	0	0	0	1	0	0	0	0	0
PACIFIC									
Washington:									
Seattle.....	1	0	0	0	0	0	0	0	0
Oregon:									
Portland.....	0	1	1	0	0	0	0	0	0
California:									
Los Angeles.....	2	1	0	0	0	0	0	1	1
San Francisco.....	0	0	0	0	0	1	0	0	0

The following table gives the rates per 100,000 population for 98 cities for the 5-week period ended March 8, 1930, compared with those for a like period ended March 9, 1929. The population figures used in computing the rates are approximate estimates, authoritative figures for many of the cities not being available. The 98 cities reporting cases have an estimated aggregate population of more than 32,000,000. The 91 cities reporting deaths have more than 30,500,000 estimated population.

Summary of weekly reports from cities, February 2 to March 8, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929¹

DIPHTHERIA CASE RATES

	Week ended—									
	Feb. 8, 1930	Feb. 9, 1929	Feb. 15, 1930	Feb. 16, 1929	Feb. 22, 1930	Feb. 23, 1929	Mar. 1, 1930	Mar. 2, 1929	Mar. 8, 1930	Mar. 9, 1929
98 cities.....	94	117	97	121	93	118	107	121	90	133
New England.....	109	117	95	120	100	117	111	122	84	108
Middle Atlantic.....	97	141	83	147	87	139	109	140	89	185
East North Central.....	103	113	115	115	102	106	125	131	95	130
West North Central.....	82	146	104	150	93	131	118	135	116	144
South Atlantic.....	70	67	93	73	110	67	88	64	74	67
East South Central.....	81	82	74	82	108	68	61	55	40	68
West South Central.....	168	114	146	114	86	175	106	145	153	114
Mountain.....	69	78	60	44	69	44	0	61	28	61
Pacific.....	43	68	87	77	61	106	73	72	45	36

¹ The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1930 and 1929, respectively.

² South Bend, Ind., and Denver, Colo., not included.

³ Winston-Salem, N. C., not included.

⁴ South Bend, Ind., not included.

⁵ Denver, Colo., not included.

Summary of weekly reports from cities, February 2 to March 8, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929—Continued

MEASLES CASE RATES

	Week ended—									
	Feb. 8, 1930	Feb. 9, 1929	Feb. 15, 1930	Feb. 16, 1929	Feb. 22, 1930	Feb. 23, 1929	Mar. 1, 1930	Mar. 2, 1929	Mar. 8, 1930	Mar. 9, 1929
98 cities.....	324	252	420	404	456	456	548	578	636	537
New England.....	295	561	432	541	383	382	463	635	543	424
Middle Atlantic.....	186	129	224	114	267	140	364	158	440	162
East North Central.....	172	66	263	761	269	883	351	1,142	447	983
West North Central.....	398	1,193	793	983	759	1,253	920	1,555	918	1,699
South Atlantic.....	245	133	306	135	403	167	136	197	504	234
East South Central.....	81	14	263	41	681	0	850	62	810	62
West South Central.....	695	34	743	50	799	80	755	57	542	103
Mountain.....	395	1,341	738	1,019	747	923	2,004	697	2,051	818
Pacific.....	1,200	135	1,450	164	1,483	145	1,908	229	1,845	142

SCARLET FEVER CASE RATES

98 cities.....	330	246	309	277	301	261	367	298	329	298
New England.....	485	305	350	373	374	292	368	337	394	308
Middle Atlantic.....	274	186	246	222	255	202	325	230	298	228
East North Central.....	432	318	438	340	425	341	613	402	452	411
West North Central.....	362	312	324	360	321	373	334	321	338	356
South Atlantic.....	203	146	231	157	216	144	236	137	194	155
East South Central.....	216	246	169	260	169	185	196	219	196	198
West South Central.....	138	232	116	255	101	270	116	202	149	270
Mountain.....	352	113	412	87	300	113	685	218	292	157
Pacific.....	338	304	314	328	236	292	411	493	281	410

SMALLPOX CASE RATES

98 cities.....	29	5	27	8	24	12	31	16	25	12
New England.....	2	0	7	0	0	0	0	2	2	0
Middle Atlantic.....	0	0	0	0	0	0	0	0	0	0
East North Central.....	34	8	33	15	20	15	40	24	24	18
West North Central.....	59	2	47	0	91	15	89	15	78	6
South Atlantic.....	4	0	5	2	2	4	2	7	2	6
East South Central.....	0	0	27	0	13	0	7	7	20	7
West South Central.....	101	50	105	23	56	95	120	107	67	95
Mountain.....	17	26	34	70	17	35	51	87	9	44
Pacific.....	146	7	104	24	118	19	102	24	123	17

TYPHOID FEVER CASE RATES

98 cities.....	4	5	6	5	5	4	8	4	8	5
New England.....	0	2	2	4	4	9	0	2	2	4
Middle Atlantic.....	3	4	6	4	7	4	4	2	4	4
East North Central.....	5	3	3	2	1	2	1	0	3	3
West North Central.....	2	2	9	12	2	0	6	8	8	4
South Atlantic.....	11	6	7	0	13	4	55	2	38	6
East South Central.....	20	7	20	14	7	34	14	13	7	7
West South Central.....	7	27	7	11	4	8	0	19	34	19
Mountain.....	0	9	0	0	9	0	0	9	0	0
Pacific.....	2	7	5	7	12	5	7	7	7	17

¹ South Bend, Ind., and Denver, Colo., not included.

² Winston-Salem, N. C., not included.

³ South Bend, Ind., not included.

⁴ Denver, Colo., not included.

Summary of weekly reports from cities, February 2 to March 8, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929—Continued

INFLUENZA DEATH RATES

	Week ended—									
	Feb. 8, 1930	Feb. 9, 1929	Feb. 15, 1930	Feb. 16, 1929	Feb. 22, 1930	Feb. 23, 1929	Mar. 1, 1930	Mar. 2, 1929	Mar. 8, 1930	Mar. 9, 1929
91 cities.....	14	58	20	54	20	45	¹ 20	39	¹ 17	34
New England.....	4	90	4	56	16	40	11	20	18	16
Middle Atlantic.....	11	58	15	44	16	35	17	30	13	25
East North Central.....	13	28	18	36	16	33	¹ 16	81	13	81
West North Central.....	21	51	12	33	12	45	15	39	3	21
South Atlantic.....	11	92	29	60	20	69	26	67	¹ 32	47
East South Central.....	37	127	66	224	81	82	59	149	66	75
West South Central.....	54	102	73	152	73	133	69	86	24	117
Mountain.....	43	78	84	87	26	78	¹ 34	52	34	61
Pacific.....	9	41	21	41	3	38	12	31	3	22

PNEUMONIA DEATH RATES

91 cities.....	179	230	176	222	182	193	¹ 198	222	¹ 170	203
New England.....	146	354	177	303	221	233	213	272	202	218
Middle Atlantic.....	190	298	202	254	200	192	230	240	191	233
East North Central.....	139	133	129	183	153	170	¹ 180	180	142	160
West North Central.....	157	186	109	180	151	207	136	228	127	195
South Atlantic.....	198	240	106	243	203	238	216	255	¹ 200	234
East South Central.....	236	194	250	164	272	157	199	284	243	239
West South Central.....	291	191	276	211	188	250	199	207	172	226
Mountain.....	369	235	335	244	240	226	¹ 223	279	146	183
Pacific.....	160	129	132	123	83	129	77	148	92	138

¹ South Bend, Ind., and Denver, Colo., not included.

¹ Winston-Salem, N. C., not included.

¹ South Bend, Ind., not included.

¹ Denver, Colo., not included.

FOREIGN AND INSULAR

CANADA

Quebec Province—Communicable diseases—Week ended March 8, 1930.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended March 8, 1930, as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis.....	3	Mumps.....	141
Chicken pox.....	79	Puerperal septicemia.....	2
Diphtheria.....	53	Scarlet fever.....	111
Erysipelas.....	9	Tuberculosis, pulmonary.....	65
German measles.....	14	Typhoid fever.....	20
Influenza.....	19	Whooping cough.....	87
Measles.....	91		

CHINA

Meningitis.—During the week ended March 8, 1930, 2 cases of meningitis with 1 death were reported at Hong Kong, China. Seven cases with 4 deaths were reported in Canton during the same week.

CUBA

Provinces—Communicable diseases—Four weeks ended February 15, 1930.—During the four weeks ended February 15, 1930, cases of certain communicable diseases were reported in the provinces of Cuba, as follows:

Disease	Pinar del Rio	Habana	Matanzas	Santa Clara	Camaguey	Oriente	Total
Cancer.....		10			1	1	12
Chicken pox.....		32		1		8	41
Diphtheria.....	1	13	4	9	3	4	34
Malaria.....		13			9	48	70
Measles.....	1	1		21	4		27
Paratyphoid fever.....		2		1	1	2	6
Scarlet fever.....	1	19	3	1			24
Tetanus (infantile).....					1		1
Typhoid fever.....	8	18		16	4	11	57

Habana—Communicable diseases—February, 1930.—During the month of February, 1930, certain communicable diseases were reported in the city of Habana, Cuba, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Chicken pox.....	33	—	Scarlet fever.....	24	—
Diphtheria.....	20	1	Tuberculosis.....	66	38
Leprosy.....	2	—	Typhoid fever.....	16	8
Malaria.....	10	—			

¹ Many of these cases from the interior of the island.

MENINGITIS ON VESSEL

Steamship "President Hayes."—The Steamship *President Hayes*, which left Manila February 15, 1930, arrived at Honolulu, Hawaii, March 1, with two cases of meningitis, which later proved fatal, on board. One death from meningitis had occurred at sea. One hundred and eighty contacts were quarantined in Honolulu. Within a few days eight new cases developed.

SPAIN

Vital statistics—November, 1929.—The following table shows the number of births and deaths, with deaths from certain causes, which occurred in Spain during the month of November, 1929:

<i>November, 1929</i>		
Births.....	49,510	Influenza.....177
Stillbirths.....	1,382	Measles.....315
Deaths.....	30,402	Puerperal septicemia.....114
Deaths under 1 year.....	4,551	Scarlet fever.....10
Deaths from—		Tuberculosis (pulmonary).....1,694
Cancer and other malignant tumors....	1,382	Typhoid fever.....404
Diphtheria and croup.....	165	Whooping cough.....61

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

From medical officers of the Public Health Service, American consuls, International Office of Public Hygiene, Pan American Sanitary Bureau, health section of the League of Nations, and other sources. The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

CHOLERA

[C indicates cases; D, deaths; P, present]

[illegible]

Place	Aug- ust, 1929	Sep- tem- ber, 1929	Octo- ber, 1929	No- vem- ber, 1929	De- cem- ber, 1929	Janu- ary, 1930	Place	Aug- ust, 1929	Sep- tem- ber, 1929	Octo- ber, 1929	No- vem- ber, 1929	De- cem- ber, 1929	Janu- ary, 1930
British East Africa (see also table above):							†						
Kenya.....	19	28	146	177	54	34	Madagascar—Continued.						
Uganda.....	866	511	384	179	216	87	Moromanga Province.....	C	2	5	27	4	
	740	451	351	164	199	73	Tamatave Province.....	D	2	4	27	3	
Ecuador: Guayaquil.....	6	7	12	14	17	8	Tananarive Province.....	D	36	141	141	103	
Plague-infected rats.....	1	3	4	3	6	4	Peru.....	D	34	135	132	83	
Greece (see also table above).....	4	8	5	2	1	4			5	1			
	2	1	2	1			Senegal.	D	2				
Indo-China (see also table above).....	9	2			10	4	Baol [†]	C	32	42	45	23	5
Madagascar (see also table above).....	48	145	203	152			Dakar [†]	D	13	24	13	16	2
Ambohitra Province.....	46	182	163	163			Louga [†]	D	76	26	3	17	8
Antsirabe Province.....	9	9	2	42			Rufisque [†]	D	65	17	2	5	1
Itasy Province.....	1	13	17	5			Thes [†]	D	121	108	41		
Maunga Province.....	1	13	17	5			Tivaouane [†]	D	70	64	24	1	
Miarinarivo.....	2	5		10					53	34	3		3
	2								33	28	3		
	11	12		5					188	119	41	8	1
	11	11		5					119	55	21	4	

† Incomplete reports.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place	Week ended—																			
	Aug. 25-29, 1929		Sept. 1-5, 1929		Oct. 1-5, 1929		Nov. 1-5, 1929		Dec. 1-5, 1929		January, 1930				February, 1930				March, 1930	
	Aug. 25-29, 1929	Sept. 1-5, 1929	Sept. 8-12, 1929	Sept. 15-19, 1929	Oct. 2-6, 1929	Oct. 9-13, 1929	Nov. 2-6, 1929	Nov. 9-13, 1929	Dec. 2-6, 1929	Dec. 9-13, 1929	Jan. 2-6, 1930	Jan. 9-13, 1930	Jan. 16-20, 1930	Jan. 23-27, 1930	Feb. 6-10, 1930	Feb. 13-17, 1930	Feb. 20-24, 1930	March, 1930		
Great Britain—Continued																				
England and Wales—Continued																				
Leeds.....	2	156	174	321	99	83	129	169	158	127	157	156	138	193	183					
London.....	144	304	442	783	159	180	186	274	298	283	255	312	292							
London and Great Towns.....	304	442	783	159	180	186	274	298	283	255	312	292								
Newcastle-on-Tyne.....	2	1	1	1	1	1	1	1	1	1	1	1	1	2	1					
Soleke-on-Trent.....	18	7	9	1	1	2	10	3	6	3	2	10	20							
Greece: Patras.....	22	5	7	6	1	4		7	11											
Hedjaz.....	7	1	6	1				7	1											
Honduras: Choluteca.....	4,199	3,111	3,337	7,644	2,722	1,747	3,354	4,965												
India.....	954	681	730	1,903	773	642	1,068	1,345												
Bombay.....	27	16	12	42	19	29	25	46	85	74	86	97	112	155						
Calcutta.....	24	15	8	14	11	12	15	19	33	23	30	36	57	74						
Cochin.....	16	12	4	34	7	13	29	34	41	33	34	35	46	73						
Karachi.....	13	11	68	337	67	71	53	77	58	61	58	57	62	71						
Madras.....	27	10	2	9	3	3	3	4	7	6	11	5	8	14						
Moulmein.....	82	73	58	64	27	25	10	22	10	22	34	36	39	47						
Nagapattam.....	21	8	11	11	7	5	2	2	3	3	4	6	8	9						
Rangoon.....	3	3	2	3	3	1	4	1	2	8	2	6	10	7						
Tutlerin.....	2	1	1	1	1	1														
Visagapatnam.....	1	1	1	1	1	1	1	1	2	1	1	1	1	1						

Newspaper reports of Feb. 4 show an epidemic of smallpox in Itonacatepec, Morelos State, Mexico, and vicinity, giving 600 deaths in preceding two weeks. On Feb. 1, 1960, 317 cases of smallpox with 102 deaths were reported to that date in the Saragani and Balit Islands.

Newspaper reports of Feb. 4 show an epidemic of smallpox in Itonacatepec, Morelos State, Mexico, and vicinity, giving 600 deaths in preceding two weeks. On Feb. 1, 1960, 317 cases of smallpox with 102 deaths were reported to that date in the Saragani and Balit Islands.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place	Week ended—													
	December, 1929		January, 1930				February, 1930				March, 1930			
	Aug. 25, 1929	Sept. 21, 1929	Sept. 28, 1929	Oct. 19, 1929	Oct. 26, 1929	Nov. 16, 1929	Nov. 23, 1929	Dec. 1, 1929	Dec. 8, 1929	Dec. 15, 1929	Jan. 1, 1930	Jan. 8, 1930	Jan. 15, 1930	Jan. 22, 1930
Siam.....	23	33	7	3	6	27	9	1	25	1	8	15	22	1
Somaland, British: Boates.....	5	2	2	1	3	2	7	1	14	1	5	12	7	1
Somaland, French: Jibuti.....	4	3	25	24	1	2	2	1	1	1	1	5	2	1
Straits Settlements.....	2	4	16	9	4	1	1	1	1	1	1	5	2	1
Sudan (Anglo-Egyptian).....	10	11												
Sudan (French) (see table below). Syria (see table below). Tunisia, Tunis.....	11													
Turkey (see table below). Union of South Africa: Cape Province.....	198	250	91	254	52	30	205	14	21	171	24	19	1	59
Natal.....	98	16	12	45	14	9	42	1	8	20	5	2	4	1
Transvaal.....		6	23	47			3	1	4	1				
Upper Volta.....		P	P	P	P	P	P	P	P	P				
On vessel.....		P	P	P	P	P	P	P	P	P				
S. S. Karagala at Zanzibar from India.....		P	P	P	P	P	P	P	P	P				
S. S. Karos at Zanzibar.....		P	P	P	P	P	P	P	P	P				
S. S. Telipken at Manila from Australia.....		P	P	P	P	P	P	P	P	P				
S. S. Telipken at Liverpool from London.....		P	P	P	P	P	P	P	P	P				
S. S. Unwuma, at Cape Town, from London.....		P	P	P	P	P	P	P	P	P				

Place	Aug., 1929	Sep., 1929	Oct., 1929	Nov., 1929	December, 1929			January, 1930			Feb. 1-10, 1930
					1-10	11-20	21-31	1-10	11-20	21-31	
Belgian Congo.....	C	725		42	41	33					
Dahomey.....	D	19		2	4						
Indo-China (see also table above).....	C		4	19	19						
Ivory Coast.....	C	263	128	245		142		138		184	148
Sudan (French).....	C	2									
Syria: Beirut.....	C	29	23	P		17			4	225	12
	D		1	60	10	9	6	18	6	46	50

UNITED STATES TREASURY DEPARTMENT

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SPECIAL ARTICLES

**Filterability of Virus of Psittacosis in Birds
Mental Disorders and the Public Health**



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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

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THE PUBLIC HEALTH REPORTS are issued weekly by the United States Public Health Service through its Division of Sanitary Reports and Statistics, pursuant to acts of Congress approved February 15, 1893, and August 14, 1912.

They contain: (1) Current information of the prevalence and geographic distribution of preventable diseases in the United States in so far as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other communicable diseases throughout the world. (2) Articles relating to the cause, prevention, or control of disease. (3) Other pertinent information regarding sanitation and the conservation of the public health.

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PUBLIC HEALTH REPORTS

VOL. 45

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NO. 14

FILTERABILITY OF THE INFECTIVE AGENT OF PSITTACOSIS IN BIRDS

By CHARLES ARMSTRONG and G. W. MCCOY, *Surgeons*, and SARA E. BRANHAM,
Bacteriologist, Hygienic Laboratory, United States Public Health Service

The following observations suggest that the causative agent of psittacosis in birds is filterable.

EXPERIMENT I

Parrakeet No. 2 was injected subcutaneously with an emulsion of organs from a parrot that had been regarded as responsible for human infection, and, in addition, part of the carcass of the bird was put into the cage with the parrakeet. This parrakeet was found dead in the cage on the sixth day after inoculation.

An emulsion of the tissues of parrakeet No. 2 was used for the subcutaneous inoculation of parrakeet No. 6. This bird was sick on the seventh day, was chloroformed, and material was taken for further work.

Heart, liver, lungs, kidney, and breast muscle of parrakeet No. 6 were used to prepare an emulsion, part of which was filtered through a Berkefeld N filter. Fluid and plate cultures of this filtrate indicated sterility in the ordinary bacteriological sense. One cubic centimeter of this emulsion (filtrate) was inoculated into the breast muscle of two parrakeets, Nos. 7 and 8. Both these birds died on the seventh day after inoculation. Another portion of the emulsion of organs of parrakeet No. 6 was, at the same time that the filtration test was made, used without filtration to inoculate two parrakeets, Nos. 9 and 10 (controls). The inoculations also were made into the breast muscles, and the amount of the emulsion used was 0.25 c. c. to 0.5 c. c. Parrakeet No. 9 died on the eighth day and No. 10 on the twelfth day.

EXPERIMENT II

Droppings from a parrot that was regarded as having caused human infection were kept dry in a refrigerator for 31 days. At the end of this time a small portion of the droppings was emulsified and part of the emulsion was filtered through a Berkefeld N filter and tested as in the preceding experiment. The filtrate and the unfiltered emulsion

(control) were stored overnight in the ice box before being used for inoculation purposes.

The results of the inoculation of the filtrate and of the unfiltered emulsion into parakeets are shown in the following table. Certain of the birds were given phenolized serum from a recently recovered case of psittacosis (human) and others were given normal human serum, also phenolized. The serum in each case was given just prior to the giving of the infecting material and at a different site.

Birds given filtered emulsion			Controls (emulsion not filtered)		
Bird	Other treatment	Interval between inoculation and death	Bird	Other treatment	Interval between inoculation and death
A.....	None	Well after 20 days.	G.....	None.....	Well after 20 days.
B.....	do	10 days.	H.....	Immune serum....	11 days.
C.....	Immune serum....	4 hours.	J.....	do	8 days.
D.....	do	14 days.	K.....	Normal serum....	4 days.
E.....	Normal serum....	1 day.			
F.....	do	3 days.			

This experiment shows no material difference between the tests on filtrate and on the unfiltered material. No definite influence of serum is to be seen, for while the birds given the normal serum died much earlier than those given serum from the recovered case, there was one survival of the two birds given filtrate alone, and the single bird given only unfiltered emulsion also survived.

MENTAL DISORDERS AND THE PUBLIC HEALTH

By HUGH S. CUMMING, *Surgeon General, United States Public Health Service*¹

The public health administrator of the present day is called upon from time to time to make new adjustments and new adaptations to meet the ever changing conditions of modern life. New diseases are being recognized and discovered, demanding studies and investigations for their control and suppression; old diseases lose their significance through changing virulence, a community immunity, modifications in living conditions, or the development of more accurate methods for their prevention; while still other diseases, long recognized, in time become of greater relative importance and significance to the public-health official.

The business of public health is constantly changing. The dramatic and spectacular experiences in the suppression of diseases, borne by insects, water, food, or other physical agents, occur less and less each year. This is probably due, in part, to the fact that mankind

¹ Address delivered at a meeting of the Mental Hygiene Society of Maryland, at Osler Hall, Baltimore, Mar. 7, 1930.

has become more tolerant and cognizant of the necessity for absolute control of his physical environment. But public sentiment has not been sufficiently aroused to demand the control and suppression of those diseases that are dependent for their prevention on the restriction of individual rights. In the field of public health, the restriction and control of persons, such as disease carriers, affords an altogether different problem from the restriction of things and the control of physical environment.

Efforts to control smallpox further illustrate this situation. One of the most reliable and specific preventives known to medicine is available for the control of this disease, and yet an organized opposition to vaccination demands a constant educational program for the protection of a community against smallpox. Despite the difficulties encountered in the control of those diseases, demanding the control of man himself, the interest of the public-health official is also stimulated by such situations as the increase of cancer, the relative increase of deaths from cardio-vascular diseases or pneumonia, and of those endemic diseases involving the nervous system, such as disseminated sclerosis, anterior-poliomyelitis, encephalitis lethargica, or that wide variety of diseases included under the term of mental disorders. Thus, new adjustments must be made from time to time by health agencies to meet the spirit of the times; but these must be tempered by the customs and traditions of public-health practices and procedure.

The necessity for directing efforts toward the prevention of mental disorders, toward the conservation of mental health, and toward the amelioration of adverse mental states is brought to our attention by the ever-increasing number of persons with mental disorders seeking aid in public institutions. During the 50-year period from 1880 to 1930, the rate of persons under care in State hospitals for the insane alone had increased from 81 to more than 220 per each 100,000 of the general population. The rate had almost trebled, but the actual number of cases under care had increased to almost six times the number under care in 1880. The rapid expansion in public facilities for the care of the group comprising one form of mental illness—namely, the group for whom the public demands segregation—has entailed an enormous outlay of public funds for buildings and equipment, and required yearly increases in expenditures for the care of inmates.

This economic loss is of vital interest to legislators and practical administrators, who are equally desirous of reaching an adequate solution of the problem. An intangible, but none the less important, aspect of such a situation is the economic loss to the community through invaliding so many people in the prime of life, and the suffering of individuals whose families are not infrequently rendered impoverished by such diseases.

The problem of the so-called insanities is only one of the several problems, for other mental disorders also claim attention. These include the mentally defective or feeble-minded, as they are more often termed. Their prevalence is not exactly known; but studies conducted by the Public Health Service, as well as by others, indicate that they may be found in the proportion of about 5 to each 1,000 of the general population. With this figure as a basis, it is estimated that there are at least 500,000 feeble-minded persons in the United States to-day.

Besides this feeble-minded group, there is also a large number of so-called nervous invalids in whom the community is not interested sufficiently to warrant their segregation, but whose illness, nevertheless, interferes with good social adaptation and individual efficiency. These are sometimes called the nervous prostration cases, the hysteric, the neurosthenic, the psycho-neurotic; or as an interested public has dubbed them, the "shellshocks of civilization." Lastly are those with convulsive disorders, which, for purposes of convenience, have been grouped under the term "epilepsies."

It is obvious from the foregoing statements that those interested in the prevention, control, or suppression of mental diseases must be concerned with a variety of mental disorders and conditions, including the so-called insanities, feeble-mindedness, the epilepsies, and mild manifestations of mental ill health.

For a long time mental diseases were considered apart from general medicine and little effort was made to understand their nature or causes. During the early ages, those afflicted with mental deviation were regarded as either possessed of special virtues which are attributed to the Deity or as having demoniacal qualities acquired of his satanic majesty. In recent years, however, there has been an awakening of interest which has developed the specialty of psychiatry more or less independently of other branches of medical practice. A traditional aversion toward those of unsound mind, shared by the medical profession, probably operated in no small degree to produce this effect. Among other factors which played a part in this independent development was the segregation of mentally disordered persons in public institutions that were more or less isolated and remote from other centers of medical work, and also from a conscious or unconscious isolation on the part of workers engaged in this special field of medical endeavor.

But this isolation of psychiatry is gradually giving way to an appreciation of the relationship of mental factors to many forms of illness and to the establishment of a more common meeting ground with specialists in other branches of medical practice. This has been especially true with regard to those engaged in preventive work. A common meeting ground has been established with the social and

other organizations which minister to the needs of the community with regard to education, dependency, reformation, and other social problems.

In approaching the problem of mental health, the public-health administrator should contemplate the coordination of health activities with those institutional and communal forces that are called upon to minister to the needs of the mentally ill. A broad program of mental hygiene should consider where and under what conditions mental disease occurs and aid in developing appropriate means for the early recognition and treatment of mentally ill persons by providing adequate and suitable facilities for such purposes and by training personnel to undertake the work. It should also contemplate investigations and studies with respect to the underlying reasons or causes of mental ill health and interpret and diffuse such knowledge to the public and medical profession. A balanced program should also consider a just apportionment of the cost of supervision and care of the mentally ill persons by a humane and efficient method of interchange between communities having responsible jurisdictions, thus partly serving in the solution of the economic problems involved. A well-balanced program must take cognizance of the activities of agencies tending to conserve an individual's social integrity and afford such assistance and cooperation as may be possible, either directly or indirectly, that may influence the solution of these problems.

It may be of interest to enumerate briefly the accomplishments and rôle of the United States Public Health Service in carrying such a broad general program into effect. The first contribution of the Public Health Service in the field of mental health had its inception in 1875 when, by a decision of the Supreme Court, all State laws relating to foreign immigration were declared unconstitutional and the authority for the regulation of foreign immigration was declared vested in the Federal Government. This left suspended the means by which the separate States could care for the thousands of sick, disabled, and insane immigrants who came to their shores. It was not until 1882, however, six years after State regulation was declared unconstitutional, that the first Federal immigration law was enacted. Several changes took place in this law, a significant one in 1891, since which year the medical examination of arriving aliens has been conducted by officers of the United States Public Health Service. The mental disorders that are now mandatorily excluded embrace the insane, idiots, imbeciles, feeble-minded, chronic alcoholics, constitutional psychopathic inferiors, and the mentally defective. Our changing immigration policy inaugurated by the per-centum limit plan of restriction provided in 1924 for a system of consular inspection of prospective immigrants in countries of origin. This was by no means a new proposal, for the first bill providing for such a scheme

was introduced into Congress in 1838. During the first year of operation after the passage of the act of 1924, physically and mentally disabled immigrants continued to arrive at ports of entry in the same proportions as before. The same hardships and inconveniences continued, and through invitations of the British and Irish Free State Governments officers of the Public Health Service were stationed in 1925 at seven American consulates in Great Britain and Ireland for the purpose of medically examining prospective immigrants who apply for American immigration visa.

The results of this experiment of examining prospective immigrants in their country of origin was so satisfactory to all concerned that our Government was asked to continue the practice. Other governments, seeing the advantage to be had, extended an invitation for the same procedure to be applied to their nationals. The work inaugurated August 1, 1925, had extended to 9 countries, involving 27 stations and 37 officers of the Public Health Service by February 1926. During the last fiscal year (1928-29) 7 out of every 1,000 prospective immigrants examined abroad were denied permission to immigrate to the United States because of mental disorders.

Throughout the more than 35 years of the experience of the Public Health Service in immigration work, sincere efforts have been made to bring about greater perfection in the recognition of mental defects and diseases among immigrants and to improve the work. As a means for further improving the early recognition of mental disabilities among prospective immigrants, special studies have been made in countries of origin. Heretofore the individual immigrant has been the only unit considered in immigration work. Studies with reference to the feasibility of making the family the unit for consideration are now under way.

Since the growth of our population has been associated with increasing tides of immigration in the past, it might be expected that the foreign-born population would play some rôle in the evolution of public policies involving relief from the Public Treasury. Investigations along these lines indicate that the foreign-born population furnish the highest proportion of admissions to State hospitals; that the native born of foreign or mixed parentage furnish the next highest; and the native born furnish the lowest proportion. The factors productive of such a situation are very complex and form an intricate maze of forces continually working in and through each other. Obviously, the different methods of social adjustments and adaptations made by our foreign-born population must be the result of a variety of factors. It is conceivable, however, that racial traits which influence normal mental health may also be mirrored in abnormal mental states. Thus in mental disorders produced from such exogenous causes as syphilis, infectious diseases, and other physical disturbances, an

important rôle is played in their genesis by the sexual life, social customs, occupations, and habits of different racial groups; and even in those mental diseases in which endogenous factors play an important rôle, racial customs and traditions may be of significance.

It was not until 1914 that the Public Health Service undertook certain field studies and investigations referable to mental hygiene in American communities. These studies dealt with the physical and mental status of school children and with the mental status of the dependent and delinquent classes. Special surveys were made of States and local jurisdictions with reference to the prevalence and needs of the feeble-minded in the general population. Surveys and studies were also undertaken among those under care in institutions devoted to the supervision of the dependent and delinquent classes and of special institutions devoted to the care of the feeble-minded. Certain studies were also made in connection with juvenile-court work, with special reference to the mental status of those coming within the purview of such courts. The results of these studies have been published from time to time.

In the examination of some 30,000 American school children opportunity was afforded to ascertain the value of certain psychological tests and to study those children who could not profit by the usual course of study as provided in public schools. At least 20 in every 1,000 belong to this group: Some are feeble-minded, others belong to that twilight zone between normality and feeble-mindedness, others are simply mentally retarded, while still others, because of their emotional instability and because of faulty habits of thought and conduct, are problem children in schools and in the home.

With reference to the feeble-minded the Public Health Service has proceeded on the principle that life-long supervision is fundamental in the solution of this problem. Such a policy embraces a system of state-wide supervision of all mentally defective persons: First, by the early recognition in public schools; second, by training such children in special classes established in connection with educational facilities; third, by exercising care and supervision of those needing it in the community; and fourth, by institutional training and supervision of those who do not benefit by facilities available in the community. A policy of this character involves a state-wide program entailing close cooperation between health agencies, public-school authorities, and those who minister to the needs of mentally disordered persons generally. The machinery necessary to develop such a program concerns itself, first, with the establishment of the State training school for this class of the general population; second, with the organization of special classes in public schools; and third, with the development of a placement and supervision agency in the community. An adequate system of medical supervision of schools

should be of assistance in this important undertaking and lend valuable aid to those engaged in this effort.

It was recognized also that among certain children physical defects seemed to play a rôle in the production of mental retardations. Those defects which directly or indirectly affect hearing, such as middle ear disease, adenoids, and enlarged and diseased tonsils, were considered important in the production of retardation. Vision defects did not seem to play such an important rôle in this respect, but conditions associated with malnutrition, such as hookworm disease, intestinal parasites, and malarial cachexia, seemed to play an important rôle. Such findings open up an interesting avenue of speculation with reference to nutrition in childhood and its relation to mental retardation.

Many of the so-called problem cases were recognized as possessed of character traits that are prominent features in the past history of the mental invalids seen in later life. The recognition and correction of these unhealthy habits of thought and conduct in childhood may be of value in the prevention of future mental ill health, and every system for the medical supervision of school should recognize it.

In studies of the personality of feeble-minded children in the community, it was recognized that a variable proportion presented traits of character which were definitely antisocial and that the segregation of such cases was probably essential for the greater part of their lives. Special provision is now being made by some States for the segregation of this class or group in special institutions.

Whereas the Public Health Service has been interested in the study of the mental traits and mental disorders among children, no studies have been made of the preschool age group, and no experience has been acquired in connection with the mental hygiene problems arising in preparatory schools or colleges. Moreover, no experience has been had in relation to modifications or the development of the curricula of medical, theological, or law schools bearing upon the nature of mental health problems which such professions encounter in their daily work.

With the advent of the Great War, Congress created a venereal disease division in the Public Health Service, which has for its object the control and suppression of venereal diseases and research in this particular field. In the activities of that division, intensive cooperation has been maintained with State departments of health; venereal diseases have been made reportable; the manufacture, interstate sale, and purity and potency of arsenicals used in the treatment of these diseases have been supervised; special studies and investigations of diagnostic procedure and treatment have been made and are now being conducted under the supervision of the Public Health Service. Such activities must eventually reflect themselves in the

better control of venereal diseases and, hence, in a reduction in the morbidity and mortality rate of general paresis.

Subsequent to the World War, the Public Health Service was called upon to provide additional hospital facilities for the care of the disabled ex-service man and woman. In the solution of this problem this service initiated a broad program with respect to the care of the mentally disabled ex-service man, and estimated the needs, both present and future, respecting this class of beneficiary. As a member of the Interdepartmental Hospital Board concerned with this problem, it is gratifying to learn that the broad policies laid down, and the estimates made by the Public Health Service are being carried to completion.

The care afforded the insane and other mentally disabled residents of the Territory of Alaska have been the subject of discussion from time to time. In 1929 the Department of Interior asked the cooperation of the Public Health Service in this matter, and pursuant to an act of Congress, an officer was detailed to supervise the care of the Alaska insane under treatment at Portland, Oreg. The outgrowth of such a detail may mean the eventual improvement in the care of, and the development of facilities for, the mentally ill of Alaska.

Special studies of the abusive use of narcotic drugs have been undertaken by the Public Health Service since 1922. On January 19, 1929, Congress authorized the establishment of two institutions for the confinement and treatment of persons addicted to the use of habit-forming narcotic drugs who have committed offenses against the United States, and the Public Health Service was designated as the Federal agency to administer these institutions. The act created within the Public Health Service a Narcotics Division for that purpose. The functions of the newly created division are both administrative and investigative in character. The Congress of the United States has directed that these institutions to care for adult offenders shall be designed and operated as curative and rehabilitation centers.

But curative and rehabilitation centers are not created by legislative acts alone. Nor do sites, locations, buildings, and equipment, while necessary, mean that the institutions will perform these functions. Above all this, there is the necessity for competent, efficient, and interested personnel. It was assumed that such a personnel was available or could be recruited from a suitable permanent organization with a traditional background for accomplishment. In this connection, it may or may not be significant that the Public Health Service was chosen to accomplish this task.

The narcotic farms act provided for the Public Health Service to assume the responsibility for the confinement and treatment of a certain class of Federal prisoners who are addicted to the use of habit-forming drugs. Acting upon this precedent, the Department of

Justice has requested the Public Health Service to assume supervisory charge and to administrate the medical and psychiatric service in Federal prisons under the control of the Department of Justice. Such a plan has the approval of the two departments concerned, and a bill to accomplish it has been introduced into Congress and has already passed the House. With such a scheme the Public Health Service may be in a position to contribute more to the field of mental hygiene in relation to correctional procedure.

In addition to the activities enumerated, the Public Health Service has supplemented the information issued by the Bureau of the Census by ascertaining and publishing currently in the Public Health Reports certain data respecting the incidence of mental diseases in the United States with reference to the admissions and discharges of mentally disordered persons in State institutions. It is obvious that data of this character have some value, but the control and suppression of disease is dependent upon a knowledge as to when, how, and where such diseases occur. An epidemiological approach toward the problem of mental disorders is a necessary adjunct in connection with the control and suppression of mental diseases and is in keeping with the customary approach of agencies dealing with health problems.

COURT DECISION RELATING TO PUBLIC HEALTH

Statute regarding furnishing of health certificate by school-teacher construed.—(Missouri Supreme Court, Division No. 1; *Tate v. School Dist. No. 11 of Gentry County*, 23 S. W. (2d) 1013; decided Dec. 31, 1929.) In an action brought against a school district to recover on a contract of employment as teacher, one of the matters passed on by the supreme court was the construction of a statutory provision reading as follows:

No teacher shall be employed to teach in the schools of Missouri who have [has] not furnished a certificate by a reputable physician, showing said teacher to be in good health and free from any contagious disease at the time the certificate is granted.

The court stated that it was obvious that "it was the legislative intent, derivable from the language used in the statute, that the time of furnishing the required certificate shall be referable to the actual period of employment of the teacher, and not to the date of execution of the contract of employment." Continuing, the court said:

* * * The evident object and purpose of the statute is that the teacher shall be in good health and free from any contagious disease during the term of actual employment, or at least at the beginning of the term of actual employment. *Crabb v. School District*, 93 Mo. App. 254, 260. Any other construction would make the statute uncertain and indefinite in meaning and application; for, if the statute be construed literally, a teacher may comply with the literal requirement of the statute by "furnishing a certificate by a reputable physician, showing said teacher to be in good health and free from any contagious disease at the time the

certificate is granted," although the certificate of the physician may have been granted 1, 5, 10, or any number of years prior to the actual period of employment of the teacher. * * *

DEATHS DURING WEEK ENDED MARCH 22, 1930

Summary of information received by telegraph from industrial insurance companies for the week ended March 22, 1930, and corresponding week of 1929. (From the Weekly Health Index March 26, 1930, issued by the Bureau of the Census Department of Commerce)

	Week ended Mar. 22, 1930	Corresponding week, 1929
Policies in force.....	75, 593, 686	73, 638, 229
Number of death claims.....	15, 822	16, 659
Death claims per 1,000 policies in force, annual rate.....	10. 9	11. 8

Deaths from all causes in certain large cities of the United States during the week ended March 22, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index, March 29, 1930, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Mar. 22, 1930		Annual death rate per 1,000, corre- sponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Mar. 22, 1930 *
	Total deaths	Death rate †		Week ended Mar. 22, 1930	Corre- sponding week, 1929	
Total (64 cities).....	7, 862	13. 9	14. 1	713	770	63
Akron.....	53			3	5	27
Albany.....	45	19. 5	15. 6	2	4	44
Atlanta.....	88	18. 0	15. 7	7	7	74
White.....	41			3	5	96
Colored.....	47	(⁹)	(⁹)	4	2	63
Baltimore.....	267	10. 8	14. 1	26	12	88
White.....	216			22	8	96
Colored.....	51	(⁹)	(⁹)	4	4	65
Birmingham.....	66	15. 5	17. 1	6	6	56
White.....	28			1	4	15
Colored.....	38	(⁹)	(⁹)	5	2	118
Boston.....	265	17. 3	18. 5	28	25	79
Bridgeport.....	33			2	6	34
Buffalo.....	152	14. 4	14. 0	16	12	71
Cambridge.....	35	14. 5	13. 7	5	1	93
Camden.....	30	11. 6	13. 5	4	1	76
Canton.....	23	10. 3	10. 3	3	2	74
Chicago.....	778	12. 8	13. 2	68	60	60
Cincinnati.....	140			13	15	77
Cleveland.....	208	10. 7	10. 4	24	18	72
Columbus.....	96	16. 7	14. 8	7	5	68
Dallas.....	56	13. 4	14. 6	7	6	
White.....	34			4	4	
Colored.....	22	(⁹)	(⁹)	3	1	
Dayton.....	41	11. 6	14. 7	3	9	44
Denver.....	94	16. 7	15. 1	9	6	94
Des Moines.....	29	10. 0	11. 0	1	3	17
Detroit.....	313	11. 8	13. 5	46	43	71
Duluth.....	24	10. 7	12. 9	4	2	108
El Paso.....	35	15. 5	17. 3	2	8	
Fall River.....	32	12. 4	8. 5	3	4	69
Flint.....	32	11. 2	9. 8	6	7	70
Fort Worth.....	42	12. 9	11. 6	2	3	
White.....	34			0	3	
Colored.....	8	(⁹)	(⁹)	2	0	
Grand Rapids.....	31	9. 8	8. 6	4	1	61
Houston.....	62			4	9	
White.....	33			2	8	
Colored.....	29	(⁹)	(⁹)	2	1	
Indianapolis.....	100	13. 6	16. 8	3	4	22
White.....	84			2	4	17
Colored.....	16	(⁹)	(⁹)	1	0	54
Jersey City.....	65	10. 4	10. 4	11	7	96
Kansas City, Kans.....	23	10. 1	16. 7	2	6	47
White.....	20			2	4	59
Colored.....	3	(⁹)	(⁹)	0	2	0

(See footnotes at end of table.)

Deaths from all causes in certain large cities of the United States during the week ended March 22, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index, March 29, 1930, issued by the Bureau of the Census, Department of Commerce)—Continued

City	Week ended Mar. 22, 1930		Annual death rate per 1,000, corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Mar. 22, 1930 ¹
	Total deaths	Death rate ¹		Week ended Mar. 22, 1930	Corresponding week, 1929	
Kansas City, Mo.	116	15.5	14.7	8	12	62
Knoxville	51	25.2	16.8	7	3	164
White	39			6	3	156
Colored	12	(²)	(²)	1	0	247
Los Angeles	311			20	27	61
Louisville	107	16.9	16.1	9	8	78
White	79			8	6	79
Colored	28	(²)	(²)	1	2	72
Lowell	25			3	1	71
Lynn	21	10.4	11.9	2	2	51
Memphis	102	28.0	24.4	4	9	46
White	50			2	3	37
Colored	52	(²)	(²)	2	6	67
Milwaukee	124	11.9	14.5	20	30	101
Minneapolis	99	11.3	11.2	8	14	52
Nashville	52	19.4	20.9	6	8	93
White	31			4	6	82
Colored	21	(²)	(²)	2	2	127
New Bedford	21			2	2	57
New Haven	46	12.8	14.2	6	3	117
New Orleans	173	21.0	18.3	26	13	145
White	98			5	5	44
Colored	75	(²)	(²)	20	8	336
New York	1,618	14.0	14.0	146	168	61
Bronx Borough	236	12.9	11.0	18	15	42
Brooklyn Borough	544	12.3	12.9	67	71	71
Manhattan Borough	631	18.8	19.4	43	68	71
Queens Borough	165	10.1	9.8	14	13	41
Richmond Borough	42	14.5	12.1	4	1	74
Newark, N. J.	114	12.6	15.0	12	11	63
Oakland	68	12.9	14.1	0	4	0
Oklahoma City	42			5	3	96
Omaha	57	13.3	14.0	5	7	57
Paterson	40	14.4	14.8	5	4	87
Philadelphia	544	13.7	13.7	87	54	55
Pittsburgh	185	14.3	16.7	20	23	73
Portland, Oreg.	91			6	1	74
Providence	68	12.4	15.5	6	9	55
Richmond	49	13.1	17.2	1	6	15
White	31			0	2	0
Colored	18	(²)	(²)	1	4	44
Rochester	77	12.2	11.4	5	6	44
St. Louis	259	15.9	17.3	12	20	39
St. Paul	59			2	2	20
Salt Lake City ⁴	39	14.7	14.0	3	7	47
San Antonio	59	14.1	12.7	11	8	
San Diego	42			2	2	42
San Francisco	162	14.4	12.1	4	6	27
Schenectady	21	11.7	7.8	1	3	31
Seattle	94	12.8	10.3	2	7	20
Somerville	20	10.2	10.7	3	3	98
Spokane	21	10.0	15.3	1	1	26
Springfield, Mass.	38	13.2	14.3	5	5	79
Syracuse	42	11.0	15.7	5	6	62
Tacoma	37	17.5	8.0	1	0	26
Toledo	64	10.7	13.0	3	7	27
Trenton	40	15.0	15.0	5	4	38
Utica	29	14.5	15.5	5	5	142
Washington, D. C.	147	13.9	16.5	13	9	75
White	94			4	7	35
Colored	53	(²)	(²)	9	2	160
Waterbury	24			1	1	26
Wilmington, Del.	31	12.6	16.6	3	3	68
Worcester	50	13.2	15.6	4	9	52
Yonkers	27	11.6	10.3	1	3	24

¹ Annual rate per 1,000 population.

² Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.

³ Data for 71 cities.

⁴ Deaths for week ended Friday.

⁵ In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended March 22, 1930, and March 23, 1929

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended March 22, 1930, and March 23, 1929

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Mar. 22, 1930	Week ended Mar. 23, 1929	Week ended Mar. 22, 1930	Week ended Mar. 23, 1929	Week ended Mar. 22, 1930	Week ended Mar. 23, 1929	Week ended Mar. 22, 1930	Week ended Mar. 23, 1929
New England States:								
Maine.....		6	6	26	31	251	2	0
New Hampshire.....	3	3	7	14	29	36	0	0
Vermont.....		3			18	7	0	0
Massachusetts.....	68	84	13	65	862	387	7	5
Rhode Island.....	4	11		6	2	90	0	0
Connecticut.....	20	28	9	18	16	515	2	2
Middle Atlantic States:								
New York.....	126	310	140	152	961	1,214	21	42
New Jersey.....	146	107	15	22	788	246	11	6
Pennsylvania.....	159	189			1,297	2,293	21	7
East North Central States:								
Ohio.....	28	29	12	43	720	1,263	4	5
Indiana.....	24	30			84	485	14	0
Illinois.....	164	167	44	220	662	1,637	10	14
Michigan.....	66	88	8	20	995	417	24	38
Wisconsin.....	14	17	30	50	835	1,142	4	8
West North Central States:								
Minnesota.....	14	27	4	1	292	752	3	3
Iowa.....	6	11			462	57	1	5
Missouri.....	37	52	9	14	145	384	13	36
North Dakota.....	5	8			26	81	1	6
South Dakota.....	1	3	2	1	109	16	0	2
Nebraska.....	12	16			594	49	4	2
Kansas.....	13	9	1	26	557	290	3	9
South Atlantic States:								
Delaware.....	4	1	1	3	18	32	0	0
Maryland.....	21	20	36	98	19	83	1	1
District of Columbia.....	18	11		5	1	24	0	0
West Virginia.....	21	9	22	64	97	249	2	3
North Carolina.....	33	22	36		25	72	2	5
South Carolina.....	14	17	914	623		10	4	0
Georgia.....	6	7	128	55	221	25	10	1
Florida.....	7	6	2	4	388	26	0	0
East South Central States:								
Kentucky.....					217	54	2	0
Tennessee.....	7	11	95	95	287	6	52	5
Alabama.....	22	26	171	111	312	114	6	7
Mississippi.....	10	8					11	

¹ New York City only.

² Week ended Friday.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended March 22, 1930, and March 23, 1929—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Mar. 22, 1930	Week ended Mar. 23, 1929	Week ended Mar. 22, 1930	Week ended Mar. 23, 1929	Week ended Mar. 22, 1930	Week ended Mar. 23, 1929	Week ended Mar. 22, 1930	Week ended Mar. 23, 1929
West South Central States:								
Arkansas.....	8	16	68	148	17	56	10	6
Louisiana.....	18	21	27	99	122	85	2	2
Oklahoma ¹	15	18	54	153	140	27	3	6
Texas.....	24	21	26	64	129	150	4	2
Mountain States:								
Montana.....	3	4	-----	-----	33	130	3	6
Idaho.....	-----	3	-----	0	28	4	2	10
Wyoming.....	1	2	-----	4	10	22	0	0
Colorado.....	10	10	-----	4	347	11	2	6
New Mexico.....	8	4	1	9	122	2	2	3
Arizona.....	7	-----	8	1	30	-----	4	2
Utah ¹	4	1	-----	4	186	4	5	14
Pacific States:								
Washington.....	3	7	-----	-----	269	105	9	34
Oregon.....	11	8	58	107	52	194	1	2
California.....	54	58	24	102	1,901	57	13	18
Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Mar. 22, 1930	Week ended Mar. 23, 1929	Week ended Mar. 22, 1930	Week ended Mar. 23, 1929	Week ended Mar. 22, 1930	Week ended Mar. 23, 1929	Week ended Mar. 22, 1930	Week ended Mar. 23, 1929
New England States:								
Maine.....	0	0	52	56	0	2	0	0
New Hampshire.....	0	0	23	26	0	0	0	0
Vermont.....	0	0	12	20	1	11	0	0
Massachusetts.....	0	0	260	336	0	0	0	4
Rhode Island.....	0	0	20	23	0	0	0	2
Connecticut.....	0	0	139	74	0	9	1	1
Middle Atlantic States:								
New York.....	1	1	627	708	16	5	18	11
New Jersey.....	0	1	308	253	0	0	6	4
Pennsylvania.....	0	2	547	531	3	0	10	17
East North Central States:								
Ohio.....	0	2	247	306	174	47	4	16
Indiana.....	0	0	161	230	144	60	0	6
Illinois.....	0	3	624	523	139	137	6	4
Michigan.....	2	1	320	368	79	84	4	5
Wisconsin.....	0	0	170	263	24	5	4	4
West North Central States:								
Minnesota.....	2	0	142	103	10	0	6	3
Iowa.....	0	1	90	182	87	60	2	3
Missouri.....	0	0	114	87	72	40	2	7
North Dakota.....	0	0	24	47	10	6	3	0
South Dakota.....	0	0	16	31	41	15	1	1
Nebraska.....	1	0	87	120	45	71	0	1
Kansas.....	0	0	135	223	110	79	5	0
South Atlantic States:								
Delaware.....	0	0	12	2	0	0	3	0
Maryland ¹	0	0	99	105	0	0	7	2
District of Columbia.....	1	0	26	24	0	0	0	0
West Virginia.....	0	0	45	16	29	21	11	21
North Carolina.....	0	2	39	33	15	14	1	6
South Carolina.....	0	0	23	13	0	3	12	6
Georgia.....	1	0	24	20	0	15	7	6
Florida.....	0	0	11	10	0	0	0	3
East South Central States:								
Kentucky.....	0	0	39	112	20	43	2	6
Tennessee.....	2	0	70	52	10	0	18	4
Alabama.....	1	1	28	11	2	6	18	12
Mississippi.....	0	0	13	7	0	1	4	2
West South Central States:								
Arkansas.....	0	0	11	9	39	6	4	3
Louisiana.....	0	0	27	53	1	5	15	7
Oklahoma ¹	1	0	21	28	74	101	3	4
Texas.....	0	1	58	71	35	85	0	3

¹ Week ended Friday.¹ Figures for 1930 are exclusive of Oklahoma City and Tulsa.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended March 22, 1930, and March 23, 1929—Continued

Division and State	Pollomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Mar. 22, 1930	Week ended Mar. 23, 1929	Week ended Mar. 22, 1930	Week ended Mar. 23, 1929	Week ended Mar. 22, 1930	Week ended Mar. 23, 1929	Week ended Mar. 22, 1930	Week ended Mar. 23, 1929
Mountain States:								
Montana.....	0	0	42	21	9	4	0	0
Idaho.....	0	0	7	2	11	11	2	0
Wyoming.....	0	1	2	7	5	2	0	0
Colorado.....	0	0	20	20	9	26	7	1
New Mexico.....	0	0	20	27	3	0	0	3
Arizona.....	0	0	30	—	41	6	1	1
Utah ¹	0	0	6	6	0	2	0	1
Pacific States:								
Washington.....	0	1	61	20	71	52	6	5
Oregon.....	0	1	44	53	21	36	1	1
California.....	2	8	182	473	67	37	8	13

¹ Week ended Friday.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Menin- gococ- cus menin- gitis	Diph- theria	Influen- za	Ma- laria	Meas- les	Pella- gra	Pollo- mye- litis	Scarlet fever	Small- pox	Ty- phoid fever
<i>January, 1930</i>										
Hawaii Territory.....	2	39	14	—	70	—	1	—	1	5
<i>February, 1930</i>										
Idaho.....	27	85	—	—	347	—	0	45	71	2
Illinois.....	44	633	138	—	2,337	—	6	2,541	493	21
Louisiana.....	18	69	156	21	428	7	2	78	25	37
Maine.....	1	15	47	—	74	—	2	233	0	14
Maryland.....	4	108	188	1	53	—	1	400	0	12
Michigan.....	120	281	36	2	2,028	1	3	1,365	311	11
Minnesota.....	11	48	9	—	1,023	—	1	575	33	11
Missouri.....	76	164	168	32	518	—	3	554	336	7
New York.....	85	577	—	3	2,449	—	10	2,128	22	82
North Carolina.....	17	145	157	—	46	91	4	231	79	10
Ohio.....	32	251	167	—	2,488	1	5	1,396	825	35
Oklahoma ¹	17	80	695	58	518	25	1	185	391	28
Pennsylvania.....	42	627	—	—	3,077	—	2	2,005	10	51
Rhode Island.....	0	48	1	—	13	—	0	135	0	2
West Virginia.....	11	39	135	—	295	—	0	197	141	31

<i>January, 1930</i>			Chicken pox:		Cases
Hawaii Territory:	Cases		Idaho.....	—	43
Chicken pox.....	95		Illinois.....	—	1,447
Conjunctivitis, follicular.....	54		Louisiana.....	—	71
Hookworm disease.....	1		Maine.....	—	224
Impetigo contagiosa.....	3		Maryland.....	—	607
Leprosy.....	3		Michigan.....	—	926
Mumps.....	26		Minnesota.....	—	366
Psittacosis.....	1		Missouri.....	—	542
Tetanus.....	2		New York.....	—	2,750
Trachoma.....	1		North Carolina.....	—	960
Whooping cough.....	22		Ohio.....	—	1,863
			Oklahoma ¹	—	82
<i>February, 1930</i>			Pennsylvania.....	—	2,752
Actinomycosis:			Rhode Island.....	—	71
Illinois.....	1		West Virginia.....	—	284
Anthrax:			Conjunctivitis:		
New York.....	2		Oklahoma ¹	—	4
Oklahoma ¹	1		Diarrhea:		
			Maryland.....	—	1

¹ Exclusive of Oklahoma City and Tulsa.

Diarrhea and enteritis:	Cases	Paratyphoid fever—Continued.	Cases
Ohio (under 2 years).....	17	North Carolina.....	2
Dysentery:		Ohio.....	2
Illinois.....	12	Psittacosis:	
Louisiana.....	1	Maryland.....	9
Maryland.....	1	Puerperal septicemia:	
Minnesota (amebic).....	1	Illinois.....	7
New York.....	5	New York.....	10
Oklahoma ¹	5	Ohio.....	8
Food poisoning:		Pennsylvania.....	7
Ohio.....	1	Rabies in animals:	
German measles:		Illinois.....	7
Illinois.....	134	Louisiana.....	9
Maine.....	14	Maryland.....	4
Maryland.....	16	Missouri.....	9
New York.....	547	New York.....	8
North Carolina.....	18	Rhode Island.....	6
Ohio.....	51	Rabies in man:	
Pennsylvania.....	200	Michigan.....	1
Rhode Island.....	26	Scabies:	
Hookworm disease:		Maryland.....	1
Louisiana.....	14	Oklahoma ¹	1
Impetigo contagiosa:		Septic sore throat:	
Maryland.....	4	Idaho.....	1
Lead poisoning:		Illinois.....	8
Illinois.....	7	Louisiana.....	1
Ohio.....	3	Maine.....	1
Leprosy:		Maryland.....	25
Illinois.....	1	Michigan.....	41
Louisiana.....	1	Missouri.....	6
Lethargic encephalitis:		New York.....	41
Illinois.....	7	North Carolina.....	8
Maine.....	1	Ohio.....	48
Maryland.....	2	Oklahoma ¹	22
Michigan.....	5	Rhode Island.....	4
Minnesota.....	3	Tetanus:	
New York.....	10	Louisiana.....	2
Ohio.....	8	Maryland.....	2
Pennsylvania.....	7	New York.....	3
Rhode Island.....	1	Ohio.....	1
Milk sickness.		Pennsylvania.....	2
Illinois.....	1	Trachoma:	
Mumps:		Illinois.....	3
Idaho.....	63	Louisiana.....	11
Illinois.....	786	Minnesota.....	1
Louisiana.....	8	Missouri.....	9
Maine.....	287	New York.....	3
Maryland.....	76	Ohio.....	6
Michigan.....	501	Oklahoma ¹	9
Missouri.....	161	Pennsylvania.....	2
New York.....	2,142	Rhode Island.....	2
Ohio.....	785	Trench mouth:	
Oklahoma ¹	31	Oklahoma ¹	1
Pennsylvania.....	1,425	Trichinosis:	
Rhode Island.....	2	Minnesota.....	17
Ophthalmia neonatorum:		Ohio.....	1
Illinois.....	30	Pennsylvania.....	2
Maryland.....	1	Tularemia:	
New York.....	3	Illinois.....	10
Ohio.....	120	Louisiana.....	1
Pennsylvania.....	7	Maryland.....	1
Rhode Island.....	1	Ohio.....	8
Paratyphoid fever:		Undulant fever:	
Illinois.....	1	Illinois.....	6
Maine.....	3	Maine.....	1
New York.....	3	Maryland.....	2

¹ Exclusive of Oklahoma City and Tulsa.

Undulant fever—Continued.	Cases	Whooping cough—Continued.	Cases
Michigan.....	2	Louisiana.....	46
Minnesota.....	2	Maine.....	181
Missouri.....	12	Maryland.....	196
New York.....	8	Michigan.....	577
Ohio.....	4	Minnesota.....	223
Pennsylvania.....	5	Missouri.....	154
Vincent's angina:		New York.....	1,645
Maine.....	6	North Carolina.....	1,120
Maryland.....	9	Ohio.....	851
New York.....	90	Oklahoma ¹	63
Oklahoma ¹	2	Pennsylvania.....	1,551
Whooping cough:		Rhode Island.....	154
Idaho.....	16	West Virginia.....	187
Illinois.....	811		

¹ Exclusive of Oklahoma City and Tulsa.

RECIPROCAL NOTIFICATIONS

Notifications regarding communicable diseases sent during the month of February, 1930, by departments of health of certain States to other State health departments

Disease	California	Connecticut	Illinois	Minnesota	New York	Ohio
Diphtheria.....				1		
Meningitis—epidemic.....				1		
Scarlet fever.....		1				
Smallpox.....			4			
Trachoma.....				1		
Tuberculosis.....	1		10	29		1
Typhoid fever.....	1			3	2	

¹ One carrier.

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 96 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 31,985,000. The estimated population of the 89 cities reporting deaths is more than 30,395,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended March 15, 1930, and March 16, 1929

	1930	1929	Estimated expectancy
<i>Cases reported</i>			
Diphtheria:			
46 States.....	1,423	1,460	
96 cities.....	639	765	926
Measles:			
45 States.....	12,980	12,739	
96 cities.....	4,065	4,039	
Meningococcus meningitis:			
46 States.....	247	329	
96 cities.....	109	152	
Polioomyelitis:			
47 States.....	19	14	
Scarlet fever:			
46 States.....	5,479	5,944	
96 cities.....	2,123	1,969	1,619
Smallpox:			
46 States.....	1,549	1,055	
96 cities.....	155	75	84
Typhoid fever:			
46 States.....	152	142	
96 cities.....	34	27	30
<i>Deaths reported</i>			
Influenza and pneumonia:			
89 cities.....	1,039	1,246	
Smallpox:			
89 cities.....	0	0	

City reports for week ended March 15, 1930

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during non-epidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1921 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND								
Maine:								
Portland.....	25	1	0	1	0	1	12	4
New Hampshire:								
Concord.....	0	0	1	-----	0	2	0	4
Manchester.....	0	0	0	-----	1	0	0	3
Nashua.....	1	0	0	-----	0	4	0	0
Vermont:								
Barre.....	8	0	0	-----	0	0	0	0
Massachusetts:								
Boston.....	60	38	15	3	0	244	51	15
Fall River.....	4	3	0	1	1	1	0	3
Springfield.....	15	4	7	-----	0	1	5	5
Worcester.....	5	4	0	1	0	56	0	0
Rhode Island:								
Pawtucket.....	3	1	3	-----	0	0	0	4
Providence.....	8	8	9	2	0	0	0	15
Connecticut:								
Bridgeport.....	1	6	3	1	0	0	0	3
Hartford.....	8	6	0	-----	0	2	1	11
New Haven.....	39	1	0	-----	0	0	5	6
MIDDLE ATLANTIC								
New York:								
Buffalo.....	22	12	6	-----	0	2	8	15
New York.....	264	236	135	29	11	301	175	229
Rochester.....	9	8	3	-----	0	8	4	5
Syracuse.....	23	5	0	-----	0	0	111	7
New Jersey:								
Camden.....	1	6	0	-----	0	0	0	5
Newark.....	59	16	24	4	0	181	15	11
Trenton.....	2	3	6	1	0	28	0	11
Pennsylvania:								
Philadelphia.....	96	69	24	11	7	111	65	66
Pittsburgh.....	29	19	9	-----	7	244	9	40
Reading.....	31	3	0	-----	0	1	2	4
Scranton.....	6	3	1	-----	0	0	0	0
EAST NORTH CENTRAL								
Ohio:								
Cincinnati.....	6	10	3	4	2	0	0	18
Cleveland.....	165	30	28	8	1	4	43	30
Columbus.....	19	4	3	1	1	45	7	6
Toledo.....	42	5	1	3	3	187	21	5
Indiana:								
Fort Wayne.....	3	2	0	-----	0	0	0	3
Indianapolis.....	17	6	3	-----	0	15	5	16
South Bend.....	0	1	0	-----	0	0	0	1
Terre Haute.....	1	1	0	-----	0	1	0	2
Illinois:								
Chicago.....	124	100	130	20	7	27	79	76
Springfield.....	13	1	0	1	1	2	9	0
Michigan:								
Detroit.....	83	50	38	8	2	624	72	48
Flint.....	19	3	2	-----	0	8	7	5
Grand Rapids.....	3	2	0	-----	1	1	1	2

City reports for week ended March 15, 1930—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneu- monia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST NORTH CENTRAL—continued								
Wisconsin:								
Kenosha.....	4	2	0	-----	0	0	0	1
Madison.....	2	0	1	-----	-----	53	1	-----
Milwaukee.....	178	17	7	-----	0	7	110	7
Racine.....	8	2	1	-----	0	3	0	0
Superior.....	0	0	1	-----	0	23	0	0
WEST NORTH CENTRAL								
Minnesota:								
Duluth.....	3	0	0	-----	0	76	0	1
Minneapolis.....	41	14	2	-----	0	30	70	14
St. Paul.....	30	9	1	-----	1	2	21	8
Iowa:								
Davenport.....	4	1	0	-----	-----	0	2	-----
Des Moines.....	2	2	0	-----	-----	52	3	-----
Sioux City.....	2	1	1	-----	-----	36	14	-----
Waterloo.....	25	0	0	-----	-----	63	2	-----
Missouri:								
Kansas City.....	25	6	8	-----	0	15	0	12
St. Joseph.....	0	0	0	-----	0	1	0	5
St. Louis.....	29	42	27	-----	3	3	17	-----
North Dakota:								
Fargo.....	6	1	0	-----	0	0	19	1
Grand Forks.....	1	0	0	-----	-----	0	0	-----
South Dakota:								
Aberdeen.....	3	0	0	-----	-----	0	0	-----
Sioux Falls.....	0	0	0	-----	-----	18	0	-----
Nebraska:								
Omaha.....	14	3	15	-----	0	70	0	6
Kansas:								
Topeka.....	3	1	0	-----	1	52	15	0
Wichita.....	30	2	3	-----	0	55	2	1
SOUTH ATLANTIC								
Delaware:								
Wilmington.....	3	3	4	-----	0	1	0	4
Maryland:								
Baltimore.....	165	24	22	-----	3	6	3	34
Cumberland.....	2	1	0	-----	0	0	0	1
Frederick.....	0	0	0	-----	0	0	0	0
District of Columbia:								
Washington.....	37	13	14	-----	2	14	0	14
Virginia:								
Lynchburg.....	4	0	2	-----	0	110	8	6
Norfolk.....	8	2	2	-----	0	2	63	6
Richmond.....	8	2	2	-----	1	0	0	5
Roanoke.....	0	1	0	-----	0	64	0	2
West Virginia:								
Charleston.....	-----	0	-----	-----	-----	-----	-----	-----
Wheeling.....	4	2	0	-----	0	1	2	2
North Carolina:								
Raleigh.....	26	0	2	-----	0	0	0	2
Wilmington.....	11	0	0	-----	0	0	0	2
Winston-Salem.....	8	1	0	-----	0	0	14	2
South Carolina:								
Charleston.....	2	1	1	-----	41	0	1	3
Columbia.....	4	0	0	-----	-----	3	1	1
Georgia:								
Atlanta.....	17	3	3	-----	26	0	19	16
Brunswick.....	0	0	0	-----	0	0	0	0
Savannah.....	-----	1	-----	-----	-----	-----	-----	-----
Florida:								
Miami.....	3	2	4	-----	2	0	3	0
St. Petersburg.....	-----	0	-----	-----	-----	-----	-----	-----
Tampa.....	13	1	1	-----	-----	1	16	19

City reports for week ended March 15, 1930—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases re- ported	Mumps, cases re- ported	Pneu- monia, deaths reported
		Cases, estimated expect- ancy	Cases re- ported	Cases re- ported	Deaths reported			
EAST SOUTH CENTRAL								
Kentucky:								
Covington.....	1	0	1	-----	1	0	0	3
Tennessee:								
Memphis.....	16	4	0	-----	3	0	17	10
Nashville.....	0	1	0	3	3	4	0	7
Alabama:								
Birmingham.....	9	2	3	13	5	2	1	11
Mobile.....	1	0	0	-----	1	6	0	5
Montgomery.....	2	0	0	1	-----	94	2	-----
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith.....	0	0	0	-----	-----	1	0	-----
Little Rock.....	13	1	0	-----	0	1	0	0
Louisiana:								
New Orleans.....	3	12	10	3	7	50	0	14
Shreveport.....	4	0	0	-----	0	1	5	3
Oklahoma:								
Oklahoma City.....	3	1	0	-----	3	20	1	0
Tulsa.....	25	1	0	-----	-----	317	0	-----
Texas:								
Dallas.....	14	5	8	1	1	122	6	5
Fort Worth.....	6	4	1	-----	1	2	0	3
Galveston.....	0	1	1	-----	0	0	0	2
Houston.....	1	5	10	-----	2	1	0	7
San Antonio.....	0	3	3	-----	2	1	0	9
MOUNTAIN								
Montana:								
Billings.....	1	0	0	-----	0	0	10	1
Great Falls.....	3	1	0	-----	0	0	13	0
Helena.....	0	0	0	-----	0	0	13	1
Missoula.....	0	0	0	-----	0	0	0	0
Idaho:								
Boise.....	0	0	0	-----	0	0	0	0
Colorado:								
Denver.....	42	9	3	-----	2	106	24	5
Pueblo.....	9	1	0	-----	0	0	52	3
New Mexico:								
Albuquerque.....	0	0	0	-----	0	21	10	3
Arizona:								
Phoenix.....	7	1	0	-----	0	5	0	1
Utah:								
Salt Lake City.....	20	2	0	-----	0	171	11	3
Nevada:								
Reno.....	0	0	0	-----	0	1	0	1
PACIFIC								
Washington:								
Seattle.....	67	4	3	-----	-----	89	80	-----
Spokane.....	28	2	0	1	-----	0	0	-----
Tacoma.....	18	1	3	-----	0	32	2	2
Oregon:								
Portland.....	15	8	1	-----	1	7	11	7
Salem.....	12	0	0	-----	0	0	9	0
California:								
Los Angeles.....	83	41	19	20	1	238	41	15
Sacramento.....	9	2	0	-----	0	10	46	6
San Francisco.....	49	18	6	2	0	560	108	3

City reports for week ended March 15, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
NEW ENGLAND											
Maine:											
Portland.....	3	1	0	0	0	0	0	0	0	7	23
New Hampshire:											
Concord.....	0	3	0	0	0	0	0	0	0	0	14
Manchester.....	3	0	0	0	0	0	0	0	0	0	32
Nashua.....	1	0	0	0	0	0	0	0	0	0	-----
Vermont:											
Barre.....	0	0	0	0	0	3	0	0	0	2	5
Massachusetts:											
Boston.....	86	81	0	0	0	18	1	1	0	58	246
Fall River.....	5	0	0	0	0	2	0	0	0	15	-----
Springfield.....	8	12	0	0	0	3	0	0	0	26	55
Worcester.....	10	14	0	0	0	2	0	1	0	16	52
Rhode Island:											
Pawtucket.....	2	1	0	0	0	0	0	0	0	13	14
Providence.....	12	22	0	0	0	4	0	0	0	14	64
Connecticut:											
Bridgeport.....	12	29	0	0	0	1	0	0	0	0	40
Hartford.....	6	8	0	0	0	6	0	0	0	2	65
New Haven.....	10	5	0	0	0	1	0	0	0	6	47
MIDDLE ATLANTIC											
New York:											
Buffalo.....	29	31	0	0	0	17	0	0	0	28	146
New York.....	372	374	0	0	0	124	8	8	0	82	1,684
Rochester.....	13	12	0	0	0	3	0	0	0	1	90
Syracuse.....	11	41	0	0	0	2	0	0	0	19	56
New Jersey:											
Camden.....	7	3	0	0	0	0	0	1	0	0	44
Newark.....	44	66	0	0	0	5	0	0	0	21	114
Trenton.....	5	12	0	0	0	3	0	0	0	2	42
Pennsylvania:											
Philadelphia.....	103	158	0	0	0	37	2	1	0	20	539
Pittsburgh.....	33	30	0	0	0	12	0	0	0	35	226
Reading.....	6	4	0	0	0	0	0	0	0	9	26
Scranton.....	3	4	0	0	0	0	1	1	0	0	-----
EAST NORTH CENTRAL											
Ohio:											
Cincinnati.....	20	29	2	11	0	17	1	0	0	6	164
Cleveland.....	47	141	0	0	0	14	1	0	0	94	266
Columbus.....	11	5	1	7	0	8	0	0	0	1	70
Toledo.....	14	28	2	5	0	4	1	2	1	11	91
Indiana:											
Fort Wayne.....	6	4	1	12	0	0	0	0	0	2	25
Indianapolis.....	12	18	9	3	0	3	0	1	0	5	-----
South Bend.....	3	5	0	0	0	1	0	0	0	0	17
Terre Haute.....	3	3	1	0	0	0	0	0	2	0	23
Illinois:											
Chicago.....	136	341	2	6	0	48	2	1	0	107	766
Springfield.....	4	0	0	0	0	1	0	0	0	4	14
Michigan:											
Detroit.....	120	132	2	6	0	34	1	0	0	35	332
Flint.....	13	21	2	3	0	3	0	0	0	14	32
Grand Rapids.....	11	6	0	0	0	0	1	0	0	6	36
Wisconsin:											
Kenosha.....	2	11	0	0	0	0	0	0	0	5	11
Madison.....	5	5	0	0	0	0	0	0	0	26	-----
Milwaukee.....	39	19	0	0	0	6	0	0	0	28	104
Racine.....	5	5	0	0	0	0	0	0	0	2	16
Superior.....	4	4	0	0	0	0	0	0	0	0	10

1 Nonresident.

City reports for week ended March 15, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
WEST NORTH CEN- TRAL											
Minnesota:											
Duluth.....	10	1	0	0	0	1	0	2	0	2	28
Minneapolis.....	57	12	3	0	0	3	0	0	0	5	78
St. Paul.....	34	18	1	0	0	2	0	0	0	24	52
Iowa:											
Davenport.....	2	0	1	10	-----	-----	0	0	-----	3	-----
Des Moines.....	9	19	2	16	-----	-----	0	0	-----	0	43
Sioux City.....	2	6	0	1	-----	-----	0	0	-----	4	-----
Waterloo.....	3	0	0	18	-----	-----	0	0	-----	1	-----
Missouri:											
Kansas City.....	21	20	2	0	0	7	0	0	0	17	113
St. Joseph.....	2	4	1	1	0	1	0	0	0	0	46
St. Louis.....	38	41	2	5	0	13	1	0	0	8	229
North Dakota:											
Fargo.....	1	4	0	2	0	0	0	0	0	11	8
Grand Forks.....	0	3	0	1	-----	-----	0	0	-----	0	-----
South Dakota:											
Aberdeen.....	1	0	0	0	-----	-----	0	0	-----	2	-----
Sioux Falls.....	2	0	0	5	-----	-----	0	0	-----	0	-----
Nebraska:											
Omaha.....	4	20	3	5	0	3	0	0	0	0	52
Kansas:											
Topeka.....	3	6	0	2	0	0	0	0	0	7	22
Wichita.....	5	27	2	2	0	0	0	0	0	7	23
SOUTH ATLANTIC											
Delaware:											
Wilmington.....	6	7	0	0	0	0	0	0	0	0	31
Maryland:											
Baltimore.....	32	55	0	0	0	22	1	1	0	19	252
Cumberland.....	1	1	0	0	0	1	0	0	0	0	11
Frederick.....	0	0	0	0	0	0	0	0	0	0	4
District of Colum- bia:											
Washington.....	27	19	1	0	0	9	1	0	0	11	147
Virginia:											
Lynchburg.....	0	0	0	0	0	0	0	0	0	2	14
Norfolk.....	2	5	0	0	0	2	0	0	0	0	-----
Richmond.....	3	6	0	0	0	10	0	0	0	0	62
Roanoke.....	1	0	0	0	0	1	0	0	0	5	19
West Virginia:											
Charleston.....	1	-----	0	-----	-----	-----	1	-----	-----	-----	-----
Wheeling.....	2	0	0	0	0	0	0	0	0	2	22
North Carolina:											
Raleigh.....	0	0	1	2	0	3	0	0	0	5	24
Wilmington.....	1	1	0	0	0	2	0	0	0	14	16
Winston-Salem.....	1	1	2	0	0	1	0	0	0	5	18
South Carolina:											
Charleston.....	1	0	0	0	0	0	0	0	0	2	29
Columbia.....	1	0	0	0	0	2	0	0	0	8	18
Georgia:											
Atlanta.....	5	12	4	0	0	3	0	0	0	7	92
Brunswick.....	0	0	0	0	0	0	0	0	0	0	4
Savannah.....	1	-----	1	-----	-----	-----	0	-----	-----	-----	-----
Florida:											
Miami.....	1	0	0	0	0	1	0	0	0	2	21
St. Petersburg.....	0	-----	0	-----	0	0	0	0	0	-----	25
Tampa.....	0	1	0	0	0	0	1	0	0	1	23
EAST SOUTH CEN- TRAL											
Kentucky:											
Covington.....	2	1	0	0	0	1	0	0	0	0	25
Tennessee:											
Memphis.....	9	13	2	0	0	8	1	4	0	7	99
Nashville.....	4	0	1	3	0	1	0	0	0	0	53
Alabama:											
Birmingham.....	3	2	6	1	0	11	1	0	0	3	78
Mobile.....	0	0	0	0	0	1	0	0	0	0	23
Montgomery.....	0	0	1	0	-----	-----	0	0	-----	0	-----

City reports for week ended March 15, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith.....	1	0	0	0	-----	-----	0	0	-----	0	-----
Little Rock.....	3	1	1	2	0	2	0	0	0	0	-----
Louisiana:											
New Orleans.....	7	19	0	0	0	13	2	2	0	0	151
Shreveport.....	1	1	1	0	0	0	0	0	0	4	27
Oklahoma:											
Oklahoma City.....	2	0	3	0	0	1	1	0	0	3	32
Tulsa.....	1	1	2	2	-----	-----	0	0	-----	11	-----
Texas:											
Dallas.....	4	18	4	0	0	0	1	0	0	4	40
Fort Worth.....	4	8	2	0	0	6	1	0	0	0	23
Galveston.....	0	0	0	0	0	1	0	0	0	0	16
Houston.....	1	7	2	3	0	5	0	0	0	0	73
San Antonio.....	2	2	0	2	0	10	1	0	0	0	81
MOUNTAIN											
Montana:											
Billings.....	0	3	0	0	0	1	0	0	0	0	9
Great Falls.....	2	26	1	0	0	2	0	0	0	0	7
Helena.....	0	0	0	0	0	0	0	0	0	0	8
Missoula.....	0	0	0	0	0	0	0	0	0	0	7
Idaho:											
Boise.....	1	0	0	0	0	0	0	0	0	0	6
Colorado:											
Denver.....	15	4	1	0	0	12	0	0	0	32	76
Pueblo.....	1	1	0	0	0	0	0	6	0	6	14
New Mexico:											
Albuquerque.....	1	1	0	3	0	7	0	1	0	0	20
Arizona:											
Phoenix.....	0	0	0	10	0	4	0	0	0	1	13
Utah:											
Salt Lake City.....	4	7	2	0	0	2	0	0	0	29	26
Nevada:											
Reno.....	0	2	0	1	0	0	0	0	0	0	6
PACIFIC											
Washington:											
Seattle.....	10	23	3	8	-----	-----	1	3	-----	12	-----
Spokane.....	8	1	8	27	-----	-----	0	0	-----	12	-----
Tacoma.....	3	7	3	14	0	0	0	0	0	6	27
Oregon:											
Portland.....	6	3	13	12	0	4	1	0	0	11	92
Salem.....	1	0	1	0	0	0	0	0	0	11	-----
California:											
Los Angeles.....	36	39	2	4	0	31	0	0	0	17	251
Sacramento.....	3	7	1	3	0	2	0	0	0	4	30
San Francisco.....	24	36	2	1	0	10	1	2	0	3	154

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, esti-mated expect-ancy	Cases	Deaths
NEW ENGLAND									
Massachusetts:									
Boston.....	5	3	0	0	0	0	0	0	0
Fall River.....	1	0	0	0	0	0	0	0	0
Connecticut:									
Bridgeport.....	1	0	0	0	0	0	0	0	0
Hartford.....	1	0	0	0	0	0	0	1	0

City reports for week ended March 15, 1930—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
MIDDLE ATLANTIC									
New York:									
New York.....	10	7	4	0	0	1	1	3	0
New Jersey:									
Newark.....	1	1	0	0	0	0	0	0	0
Pennsylvania:									
Philadelphia.....	2	0	0	0	0	0	0	0	0
Pittsburgh.....	8	5	0	0	0	0	0	0	0
EAST NORTH CENTRAL									
Ohio:									
Cincinnati.....	1	0	0	0	0	0	0	0	0
Cleveland.....	5	3	0	0	0	0	0	0	0
Columbus.....	1	1	1	1	0	0	0	0	0
Toledo.....	1	1	0	0	0	0	0	0	0
Indiana:									
Indianapolis.....	6	0	0	0	0	0	0	0	0
Terre Haute.....	1	1	0	0	0	0	0	0	0
Illinois:									
Chicago.....	9	5	1	1	0	0	0	0	0
Michigan:									
Detroit.....	12	8	0	1	1	0	0	1	0
Flint.....	2	1	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
Duluth.....	1	0	0	0	0	0	0	0	0
Minneapolis.....	3	0	0	0	0	0	0	0	0
Iowa:									
Sioux City.....	11	—	0	—	0	—	0	—	—
Missouri:									
Kansas City.....	6	2	0	0	0	0	0	0	0
St. Louis.....	2	3	0	0	0	0	0	0	0
North Dakota:									
Fargo.....	0	0	0	1	0	0	0	0	0
SOUTH ATLANTIC									
Maryland:									
Baltimore.....	1	1	0	1	1	0	0	0	0
West Virginia:									
Wheeling.....	1	1	0	0	0	0	0	0	0
North Carolina:									
Raleigh.....	0	0	0	0	1	1	0	0	0
Wilmington.....	0	0	0	0	1	0	0	0	0
Winston-Salem.....	0	0	0	0	0	1	0	0	0
South Carolina:									
Charleston ¹	0	0	0	0	7	0	0	0	0
Georgia:									
Atlanta.....	4	2	0	0	1	1	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis.....	16	9	0	0	0	0	0	0	0
Nashville.....	0	1	0	0	0	0	0	0	0
Alabama:									
Birmingham.....	0	0	0	0	0	1	0	0	0
Montgomery.....	0	0	0	0	1	0	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith.....	1	0	0	0	0	0	0	0	0
Louisiana:									
New Orleans.....	0	0	0	0	1	0	0	0	0
Shreveport.....	0	0	0	1	0	0	0	0	0
Oklahoma:									
Oklahoma City.....	0	1	0	0	0	0	0	0	0
Texas:									
Dallas.....	0	0	0	0	0	1	0	0	0
Fort Worth.....	0	0	0	0	0	1	0	0	0

¹ Nonresident.² Dengue: 2 cases at Charleston, S. C.

City reports for week ended March 15, 1930—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
MOUNTAIN									
Montana:									
Missoula.....	1	1	0	0	0	0	0	0	0
Colorado:									
Denver.....	0	1	0	0	0	0	0	0	0
Arizona:									
Phoenix.....	0	0	0	0	0	0	0	0	1
Utah:									
Salt Lake City.....	4	3	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle.....	1	0	0	0	0	0	0	0	0
Spokane.....	1	0	0	0	0	0	0	0	0
California:									
Los Angeles.....	1	2	0	0	0	0	1	0	0
San Francisco.....	0	1	0	1	1	0	0	0	0

The following table gives the rates per 100,000 population for 98 cities for the 5-week period ended March 15, 1930, compared with those for a like period ended March 16, 1929. The population figures used in computing the rates are approximate estimates, authoritative figures for many of the cities not being available. The 98 cities reporting cases have an estimated aggregate population of more than 32,000,000. The 91 cities reporting deaths have more than 30,500,000 estimated population.

*Summary of weekly reports from cities, February 9 to March 15, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929*¹

DIPHTHERIA CASE RATES

Week ended—

	Feb. 15, 1930	Feb. 16, 1929	Feb. 22, 1930	Feb. 23, 1929	Mar. 1, 1930	Mar. 2, 1929	Mar. 8, 1930	Mar. 9, 1929	Mar. 15, 1930	Mar. 16, 1929
98 cities.....	97	121	93	118	¹ 107	121	90	133	¹ 104	126
New England.....	95	130	100	117	111	123	84	108	84	135
Middle Atlantic.....	83	147	87	139	109	140	89	185	99	159
East North Central.....	115	115	102	106	¹ 125	131	95	130	135	121
West North Central.....	104	150	93	131	118	135	116	144	108	152
South Atlantic.....	93	73	110	67	88	64	71	67	¹ 99	84
East South Central.....	74	82	108	68	61	55	40	68	27	55
West South Central.....	146	114	86	175	108	145	153	114	120	95
Mountain.....	60	44	69	44	¹ 0	61	86	61	26	44
Pacific.....	87	77	61	106	73	72	45	36	73	65

¹ The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1930 and 1929, respectively.

¹ South Bend, Ind., and Denver, Colo., not included.

¹ Charleston, W. Va., and Savannah, Ga., not included.

¹ South Bend, Ind., not included.

¹ Denver, Colo., not included.

Summary of weekly reports from cities, February 9 to March 15, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929—Continued

MEASLES CASE RATES

	Week ended—									
	Feb. 15, 1930	Feb. 16, 1929	Feb. 22, 1930	Feb. 23, 1929	Mar. 1, 1930	Mar. 2, 1929	Mar. 8, 1930	Mar. 9, 1929	Mar. 15, 1930	Mar. 16, 1929
98 cities.....	420	404	456	456	¹ 548	578	634	537	¹ 662	679
New England.....	432	541	383	382	463	635	543	424	680	617
Middle Atlantic.....	224	114	267	140	364	158	440	162	418	135
East North Central.....	253	761	269	883	¹ 851	1,142	447	983	476	1,387
West North Central.....	793	983	759	1,253	920	1,555	918	1,699	765	1,967
South Atlantic.....	306	135	403	167	136	197	489	234	¹ 449	380
East South Central.....	263	41	681	0	850	62	810	62	715	41
West South Central.....	743	50	799	80	755	57	542	108	661	141
Mountain.....	738	1,019	747	923	¹ 2,004	697	2,051	818	2,386	636
Pacific.....	1,460	164	1,483	145	1,908	229	1,845	142	2,194	133

SCARLET FEVER CASE RATES

98 cities.....	309	277	301	261	¹ 367	298	329	298	¹ 346	324
New England.....	350	373	374	292	363	337	394	308	390	368
Middle Atlantic.....	246	222	255	202	325	230	298	228	345	266
East North Central.....	438	340	425	341	¹ 513	402	452	411	466	418
West North Central.....	324	360	321	373	334	321	338	356	302	368
South Atlantic.....	221	157	216	144	238	137	189	155	¹ 200	146
East South Central.....	169	260	169	185	196	219	196	198	108	222
West South Central.....	116	265	101	270	116	202	149	270	179	306
Mountain.....	412	87	300	113	¹ 695	218	292	157	369	157
Pacific.....	314	328	236	292	411	493	281	410	267	444

SMALLPOX CASE RATES

98 cities.....	27	8	24	12	¹ 31	16	25	12	¹ 25	12
New England.....	7	0	0	0	0	2	2	0	0	4
Middle Atlantic.....	0	0	0	0	0	0	0	0	0	0
East North Central.....	33	15	20	15	¹ 40	24	24	18	30	20
West North Central.....	47	0	91	15	89	15	78	6	68	81
South Atlantic.....	5	2	3	4	2	7	2	6	¹ 4	6
East South Central.....	27	0	13	0	7	7	20	7	27	7
West South Central.....	105	23	56	95	120	107	67	95	26	42
Mountain.....	34	70	17	35	¹ 51	87	9	44	9	17
Pacific.....	104	24	118	19	102	24	123	17	135	22

TYPHOID FEVER CASE RATES

98 cities.....	6	5	5	4	¹ 8	4	8	5	¹ 6	5
New England.....	2	4	4	9	0	2	2	4	4	2
Middle Atlantic.....	6	4	7	4	4	2	4	4	5	4
East North Central.....	3	2	1	2	¹ 1	0	3	3	1	2
West North Central.....	9	12	2	6	6	8	8	4	4	2
South Atlantic.....	7	6	13	4	55	2	37	6	¹ 2	7
East South Central.....	20	14	7	7	34	14	13	7	27	7
West South Central.....	7	11	4	8	0	19	34	19	7	11
Mountain.....	0	0	0	0	¹ 0	9	0	0	51	28
Pacific.....	5	7	12	5	7	7	7	17	12	10

¹ South Bend, Ind., and Denver, Colo., not included.

² Charleston, W. Va., and Savannah, Ga., not included.

³ South Bend, Ind., not included.

⁴ Denver, Colo., not included.

Summary of weekly reports from cities, February 9 to March 15, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929—Continued

INFLUENZA DEATH RATES

	Week ended—									
	Feb. 15, 1930	Feb. 16, 1929	Feb. 22, 1930	Feb. 23, 1929	Mar. 1, 1930	Mar. 2, 1929	Mar. 8, 1930	Mar. 9, 1929	Mar. 15, 1930	Mar. 16, 1929
91 cities.....	20	54	20	45	^a 20	39	17	34	^a 14	33
New England.....	4	56	16	40	11	20	18	16	2	25
Middle Atlantic.....	15	44	16	35	17	30	13	25	12	31
East North Central.....	18	36	16	33	^a 16	31	13	31	9	23
West North Central.....	12	33	12	45	15	39	3	21	6	27
South Atlantic.....	29	60	20	69	26	67	33	47	^a 18	37
East South Central.....	66	224	81	82	59	149	66	75	96	119
West South Central.....	73	152	73	133	69	86	34	117	46	102
Mountain.....	34	87	25	78	^a 34	52	34	61	17	35
Pacific.....	21	41	3	38	12	31	3	22	3	16

PNEUMONIA DEATH RATES

91 cities	176	222	182	193	^a 198	222	170	203	^a 164	184
New England.....	177	303	221	233	213	272	202	218	155	200
Middle Atlantic.....	202	254	200	192	230	240	191	233	204	197
East North Central.....	129	183	153	170	^a 180	180	142	160	123	155
West North Central.....	109	180	151	207	136	228	127	195	142	180
South Atlantic.....	196	243	203	238	216	255	203	234	^a 183	198
East South Central.....	250	164	272	157	199	284	243	239	265	201
West South Central.....	276	211	188	250	199	207	172	226	153	230
Mountain.....	335	244	240	226	^a 223	279	146	183	120	252
Pacific.....	132	123	83	129	77	148	92	138	80	135

^a South Bend, Ind., and Denver, Colo., not included.

^a Charleston, W. Va., and Savannah, Ga., not included.

^a South Bend, Ind., not included.

^a Denver, Colo., not included.

FOREIGN AND INSULAR

CANADA

*Provinces—Communicable diseases—Week ended March 1, 1930.—*The Department of Pensions and National Health reports cases of certain communicable diseases in Canada for the week ended March 1, 1930, as follows:

Province	Cerebro-spinal fever	Influenza	Lethargic encephalitis	Small-pox	Typhoid fever
Prince Edward Island ¹					
Nova Scotia.....		12			
New Brunswick.....					1
Quebec.....	1				26
Ontario.....	1	14	1	8	1
Manitoba ¹					
Saskatchewan.....			1	10	1
Alberta.....				3	1
British Columbia.....				1	
Total.....	2	26	2	22	30

¹ No case of any disease listed in the table was reported during the week.

*Ontario Province—Communicable diseases (comparative)—Four weeks ended February 22, 1930.—*The following table shows the number of cases of certain communicable diseases, with deaths therefrom, reported in the Province of Ontario, Canada, for the four weeks ended February 22, 1930, as compared with the corresponding period of 1929:

Disease	1930		1929	
	Cases	Deaths	Cases	Deaths
Cerebrospinal meningitis.....	4	5	10	5
Chancroid.....	1			
Chicken pox.....	795	2	563	
Conjunctivitis.....			1	
Diphtheria.....	218	13	273	7
Erysipelas.....	8		1	
German measles.....	288		26	
Goiter.....	1		3	1
Gonorrhea.....	111		164	
Influenza.....	68	13	509	100
Lethargic encephalitis.....		2	4	
Measles.....	1,605	2	3,521	6
Mumps.....	102		548	
Paratyphoid fever.....			1	
Pneumonia.....		211		228
Poliomyelitis.....				2
Puerperal fever.....				3
Scarlet fever.....	905	3	465	5
Septic sore throat.....	2	1	1	
Smallpox ¹	77		133	
Syphilis.....	169		131	
Tuberculosis.....	101	52	114	56
Typhoid fever.....	27	1	87	3
Undulant fever.....	2			
Whooping cough.....	380		386	2

¹ The cases of smallpox for February, 1930, were reported in the following municipalities: Napan, 10; Sudbury, 18; Woodstock, 1; Alfred, 8; North Bay, 1; Ottawa, 7; Thurlow, 3; East Ferris, 5; Fort William, 4; Welland, 1; Himsworth, N., 1; Chapman, 1; Calvin, 1; Magnetawan, 4; Trenton, 3; Sturgeon Falls, 4; Dummer, 5.

Quebec Province—Communicable diseases—Week ended March 15, 1930.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended March 15, 1930, as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis.....	3	Poliomyelitis.....	1
Chicken pox.....	99	Puerperal septicoemia.....	3
Diphtheria.....	38	Scarlet fever.....	181
German measles.....	18	Tuberculosis.....	77
Influenza.....	2	Typhoid fever.....	7
Measles.....	168	Whooping cough.....	121
Mumps.....	169		

Quebec Province—Vital statistics—December, 1929.—Births, deaths, and marriages for the month of December, 1929, in the Province of Quebec, Canada, with deaths from certain principal causes, are shown in the following table:

Estimated population.....	2, 691, 000	Deaths from—Continued.	
Births.....	6, 682	Heart disease.....	349
Birth rate per 1,000 population.....	20.2	Influenza.....	83
Deaths.....	3, 010	Lethargic encephalitis.....	1
Death rate per 1,000 population.....	13.8	Measles.....	26
Marriages.....	1, 181	Pneumonia.....	318
Deaths under 1 year.....	733	Scarlet fever.....	22
Deaths under 1 year per 1,000 births....	109.7	Syphilis.....	9
Deaths from—		Tuberculosis (pulmonary).....	228
Cancer.....	157	Tuberculosis (other forms).....	37
Cerebrospinal meningitis.....	3	Typhoid fever.....	8
Diabetes.....	34	Violence.....	87
Diarrhea.....	103	Whooping cough.....	32
Diphtheria.....	57		

CHINA

Meningitis.—During the week ended March 15, 1930, 20 cases of meningitis were reported in Shanghai, China.

GREAT BRITAIN

England and Wales—Vital statistics—October–December, 1929.—During the fourth quarter of the year 1929, 150,496 births and 112,712 deaths were registered in England and Wales, giving a birth rate, on an annual basis, of 15.1 per 1,000 population, and a death rate of 11.3 per 1,000. The figures are provisional. The mortality of infants under 1 year of age was 69 per 1,000 live births.

During the 13 weeks ended December 28, 1929, deaths from certain communicable diseases were reported in 107 county boroughs and great towns, including Greater London, as follows:

Disease	Deaths	Deaths per 1,000 population	Disease	Deaths	Deaths per 1,000 population
Diarrhea and enteritis (under 3 years).....	1, 225		Scarlet fever.....	106	0.02
Diphtheria.....	574	0.12	Smallpox.....	3	
Influenza.....	687	.14	Typhoid fever.....	54	
Measles.....	315	.06	Whooping cough.....	237	.06

Deaths from certain communicable diseases were reported in 157 smaller towns for the quarter ended December 31, 1929, as follows:

Disease	Deaths	Disease	Deaths
Diarrhea and enteritis (under 2 years).....	147	Scarlet fever.....	26
Diphtheria.....	92	Typhoid fever.....	21
Influenza.....	187	Whooping cough.....	58
Measles.....	75		

England and Wales—Communicable diseases—Thirteen weeks ended December 28, 1929.—During the 13 weeks ended December 28, 1929, cases of certain communicable diseases were reported in England and Wales, as follows:

Disease	Cases	Disease	Cases
Diphtheria.....	21,699	Puerperal pyrexia.....	1,386
Ophthalmia neonatorum.....	1,230	Scarlet fever.....	42,142
Pneumonia.....	13,978	Smallpox.....	2,432
Puerperal fever.....	628	Typhoid fever.....	905

England and Wales—Birth and death rates—Year 1929.—The following birth and death rates for England and Wales are taken from a report issued by the Registrar General. The rates for London and the groups of towns are for civilians only. The figures are provisional.

Place	Rate per 1,000 population							
	Births	Deaths, all causes	Deaths from—					
			Diph- theria	Influ- enza	Measles	Ty- phoid fever	Vio- lence	Whoop- ing cough
England and Wales.....	16.3	13.4	0.08	0.74	0.08	0.01	0.55	0.15
107 county boroughs and great towns, including London.....	16.6	13.7	.09	.76	.12	.01	.50	.19
157 smaller towns.....	16.0	12.3	.07	.71	.06	.01	.45	.15
London.....	15.7	13.8	.08	.69	.04	.01	.58	.26

Scotland—Vital statistics—Quarter ended December 31, 1929.—The Registrar General of Scotland has published the following statistics for the fourth quarter of the year 1929:

Population, estimated.....	4,896,600	Deaths from—Continued.	
Births.....	21,998	Influenza.....	23
Birth rate per 1,000 population.....	17.8	Lethargic encephalitis.....	24
Deaths.....	15,353	Malaria.....	1
Death rate per 1,000 population.....	12.4	Measles.....	96
Marriages.....	8,447	Nephritis (acute).....	56
Deaths under 1 year.....	1,768	Nephritis (chronic).....	451
Deaths under 1 year per 1,000 births.....	80	Paratyphoid fever.....	2
Deaths from—		Pneumonia.....	735
Anthrax.....	1	Poliomyelitis.....	9
Bronchitis.....	740	Puerperal sepsis.....	59
Broncho-pneumonia.....	505	Scarlet fever.....	39
Cerebrospinal meningitis.....	40	Syphilis.....	22
Diabetes.....	146	Tetanus.....	2
Diarrhea.....	64	Tuberculosis (pulmonary).....	690
Diphtheria.....	135	Tuberculosis (other forms).....	206
Dysentery.....	3	Typhoid fever.....	6
Erysipelas.....	38	Whooping cough.....	31
Heart disease.....	2,159		

Scotland—Vital statistics—Year, 1929.—The following statistics are taken from a report of the Registrar General of Scotland and show the number of births, marriages, and deaths registered in Scotland for the year 1929, together with the rate per 1,000 estimated population:

	Total number	Rate per 1,000 pop- ulation		Total number	Rate per 1,000 pop- ulation
Births.....	92, 876	19. 0	Deaths.....	70, 917	14. 5
Marriages.....	32, 992	0. 8	Deaths under 1 year.....	8, 058	.....

Deaths under 1 year per 1,000 births, 86.7.

IRELAND

Irish Free State—Vital statistics—Year 1929.—The following summary of births and deaths in the Irish Free State for the year 1929 is taken from a report issued by the Registrar General. The principal causes of death, including deaths from communicable diseases, are as follows:

Estimated population.....	2, 971, 992	Deaths from— Continued.	
Births.....	58, 342	Influenza.....	1, 629
Birth rate per 1,000 population.....	19. 8	Measles.....	134
Deaths.....	42, 974	Scarlet fever.....	60
Death rate per 1,000 population.....	14. 6	Tuberculosis (pulmonary).....	3, 034
Deaths from:		Tuberculosis (other forms).....	740
Cancer.....	3, 016	Typhoid fever.....	78
Diarrhea and enteritis (under 2 years).....	544	Typhus fever.....	8
Diphtheria.....	292	Violence.....	924
Dysentery.....	5	Whooping cough.....	378

ITALY

Communicable diseases—Four weeks ended October 27, 1929.—During the four weeks ended October 27, 1929, communicable diseases were reported in the Kingdom of Italy as follows:

Disease	Sept. 30-Oct. 6		Oct. 7-13		Oct. 14-20		Oct. 21-27	
	Cases	Com- munes affected	Cases	Com- munes affected	Cases	Com- munes affected	Cases	Com- munes affected
Anthrax.....	93	61	51	39	48	31	29	25
Cerebrospinal meningitis.....	7	5	6	6	8	8	8	3
Chicken pox.....	52	29	76	30	102	62	82	50
Diphtheria and croup.....	641	340	548	284	791	378	657	328
Dysentery.....	50	25	84	14	24	18	15	14
Lethargic encephalitis.....	2	2	2	2	2	2	1	1
Measles.....	541	165	653	117	1, 060	189	696	164
Poliomyelitis.....	38	26	42	24	28	21	13	13
Scarlet fever.....	616	220	515	200	686	239	488	212
Typhoid fever.....	1, 906	784	1, 146	519	1, 383	605	892	472

JAMAICA

Communicable diseases—Four weeks ended March 1, 1930.—During the four weeks ended March 1, 1930, cases of certain communicable diseases were reported in Kingston, Jamaica, and in the Island of Jamaica outside of Kingston, as follows.

Disease	Kings-ton	Other local-ities	Disease	Kings-ton	Other local-ities
Cerebrospinal meningitis.....	1	---	Puerperal fever.....	---	1
Chicken pox.....	7	57	Scarlet fever.....	2	2
Diphtheria.....	---	1	Tuberculosis.....	30	53
Dysentery.....	3	3	Typhoid fever.....	14	36
Leprosy.....	---	3			

MEXICO

Vera Cruz—Communicable diseases—Six weeks ended March 8, 1930.—During the six weeks ended March 8, 1930, deaths from certain communicable diseases were reported in Vera Cruz, Mexico, as follows:

Disease	Week ended—						Total
	Feb 1, 1930	Feb. 8, 1930	Feb. 15, 1930	Feb. 22, 1930	Mar 1, 1930	Mar. 8, 1930	
Bronchitis.....	1	---	---	2	1	1	5
Cancer.....	---	---	2	---	---	1	3
Gastro-intestinal disorders.....	10	8	3	7	8	8	44
Epilepsy.....	---	---	---	---	---	1	1
Hookworm disease.....	---	1	---	---	---	1	2
Malaria.....	1	---	3	2	---	1	7
Pneumonia.....	1	1	3	2	4	1	12
Tetanus.....	---	1	---	---	1	1	3
Tuberculosis.....	7	6	7	4	5	10	39
Typhoid fever.....	1	---	---	---	---	---	1

PANAMA CANAL ZONE

Communicable diseases—November–December, 1929.—During the months of November and December, 1929, certain communicable diseases, including imported cases, were reported in the Panama Canal Zone and terminal cities as follows:

Disease	November		December	
	Cases	Deaths	Cases	Deaths
Cerebrospinal meningitis.....	---	---	2	---
Chicken pox.....	47	---	30	---
Diphtheria.....	42	---	29	---
Dysentery (amebic).....	3	8	1	1
Dysentery (bacillary).....	1	---	---	---
Malaria.....	118	4	144	2
Measles.....	8	---	6	---
Mumps.....	4	---	3	---
Pneumonia.....	---	27	---	27
Poliomyelitis.....	---	---	1	---
Scarlet fever.....	---	---	1	---
Tuberculosis.....	---	27	---	27
Typhoid fever.....	2	2	---	---
Whooping cough.....	3	---	17	---

VIRGIN ISLANDS

Communicable diseases—February, 1930.—During the month of February, 1930, cases of certain communicable diseases were reported in the Virgin Islands as follows:

St. Thomas and St. John:	Cases	St. Croix:	Cases
Syphilis.....	2	Chicken pox.....	9
Tuberculosis.....	1	Mumps.....	1

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

From medical officers of the Public Health Service, American consuls, International Office of Public Hygiene, Pan American Sanitary Bureau, health section of the League of Nations, and other sources. The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

CHOLERA

[C indicates cases; D, deaths; P, present]

Place	Aug. 25- Sept. 21, 1929	Sept. 22- Oct. 19, 1929	Oct. 20- Nov. 16, 1929	Nov. 17- Dec. 14, 1929	Week ended—									
					December, 1929		January, 1930			February, 1930			March, 1930	
					21	28	4	11	18	25	1	8	15	22
China:														
Amoy.....	C	1												
Canton.....	D	1		2										
Hankow.....	D		4											
Manchuria—														
Dairen.....	C													
Newchwang.....	C	1												1
Nanking.....	C	P												
Shanghai.....	C	984	35	P										
Swatow.....	D	69	11											
".....	D	37	22	12	2									
Tientsin.....	C	P	P											
Chosen: Chemulpo.....	C	26,896	17,340	19,582	4,619	2,880	2,878	1,973	1,972					
India.....	D	16,667	10,051	10,680	10,803	2,802	1,067	1,067	1,122					
Bombay.....	C	135	160	252	265	40	38	15	45	44	33	84	65	46
Calcutta.....	C	59	70	129	114	28	27	9	26	28	21	23	38	45
Karachi.....	D	11												27
Madras.....	D			3	2									
".....	D			2	2									
Nagapatam.....	D		2	2				1			12			
".....	D							1			2			
Rangoon.....	D	1	2	1	1			1						
".....	D	1	1	1	3	3	2	3			1	1		1
Tuticorin.....	D	18	5	23	6			1						
".....	D	11	3	6	2			1						

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

CHOLERA—Continued

(C indicates cases; D, deaths; P, present)

Place	Aug. 25- Sept. 24, 1929	Sept. 25- Oct. 14, 1929	Oct. 15- Nov. 14, 1929	Nov. 15- Dec. 14, 1929	Week ended—											
					December, 1929			January, 1930			February, 1930			March, 1930		
					21	28	4	11	18	25	1	8	15	22	1	8
India (French):																
Chandernagor.....		1	5	14												
Karikal.....			5	12		1										
Pondicherry Province.....		3				1										
India (Portuguese):		3		4												
D.....	2	1														
Indo-China (see also table below):																
Pnompenh.....	3	61	43	4		2		1	2	3	3	3	2	2	5	2
Saigon and Cholon.....	2	53	37	3		2		1	2	2	2	2	1	2	3	1
Japan.....			1	2				1	2			1			5	5
Kobe.....		34						1	1						1	4
Osaka.....	9	3														
Shimonoseki.....	41	14														
Siam.....	2															
Ayudhya.....	26	9		7		3	2	3	3	2						
Bangkok.....	19	4	3	3		1										
Dhannapuri.....	10	2	4	5		1	2	3	3	2	1	1	1			
Lobpur.....	5	2	2	1		1										
Nagara Rajsinia.....	3	2														
On vessel:	3	2														
S. S. Shindei, at Shanghai.....																
S. S. at Surin, Fiji Islands.....																
S. S. Satey, at Batavia, from Calcutta.....													1		1	

CHOLERA, PLAGUE, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE

[C indicates cases; D, deaths; P, present]

Place	Sept. 23- Oct. 19, 1929	Oct. 20- Nov. 14, 1929	Nov. 17- Dec. 14, 1929	Week ended—												
				December, 1929			January, 1930			February, 1930			March, 1930			
				21	23	4	11	13	25	1	8	15	22	1	8	15	22
Argentina:																
Andalgala ¹		2														
Rosario		3														
Plague-infected rats.	C	1														
Santa Fe	C	1														
Tucuman	C	1														
Villa Lia	D															
Azores: Ponta Delgada	C															
Belgian Congo: Djugu	D															
Brazil:																
Rio de Janeiro	D															
Sao Paulo ²	C															
British East Africa (see also table below):	C	405	336	281	42	33	33	19	35	25	22					
Uganda	D	343	310	262	40	26	32	14	29	21	20					
Ceylon:																
Colombo	C	3		5	1	1	1	1	3							
	D	1		4	1	1	1	1	2							
	D			1					1							
Plague-infected rats.	C															
Galle	C															
Chile: Antofagasta	C	1														
China:																
Foochow	C	P														
Dutch East Indies:																
Batavia and West Java	C	131	266	340	65	93	66	72	35	43	46					
	D	128	262	335	61	82	64	73	35	43	44					
Plague-infected rats	C		1	8					2							
Celebes—Makassar	D															
Plague-infected rodents				1				2	2							

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE—Continued

[C indicates cases; D, deaths; P, present]

Place	Week ended—											
	December, 1929			January, 1930			February, 1930			March, 1930		
	21	28		4	11	18	25	1	8	15	22	
Iraq:												
Baghdad.....			3	4	3	1						
Basra.....			1	2	1							
Nandham.....												
Italy: Naples Province.....			2	1								
Japan: Osaka (vicinity of)—Plague-infected rats.....			1									
Kwang-Chow-Wan.....			3									
Madagascar (see also table below):												
Tamatave.....												
Morocco.....			5	3								
Nigeria: Lagos.....			10	3								
Peru (see table below).....			37	38	9	5						
Senegal (see table below).....			35	10	3	5	2					
Siam.....			39	33	21	6						
Bangkok.....			3	1	3							
Nagara Pathom.....			3	1	3							
Nagara Rajsimu.....												
Syria: Beirut.....												
Tunisia.....												
Sfax district.....												
Tunis.....												
	13	24	20	9	1	2	3	1	11	3	19	3
	26	41		9	21	8	4	1				
					21							

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER

[C indicates cases; D, deaths; P, present]

[illegible]

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PSITTACOSIS: RICKETTSIA-LIKE INCLUSIONS IN MAN AND IN EXPERIMENTAL ANIMALS¹

¹ Submitted for publication Apr. 4, 1931.

By R. D. LILLIE, *Passed Assistant Surgeon, Hygienic Laboratory, United States Public Health Service*

In the course of the experimental work on psittacosis by Armstrong and McCoy initiated at the Hygienic Laboratory early in the recent outbreak of that disease, tissues from 14 parrots and parrakeets used in that work were submitted to the writer for examination. The experimental work resulted in a laboratory outbreak of the disease. This, in itself, is important evidence that the virus (*sensu lato*) of psittacosis was being worked with.

In three parrots of this group there were encountered focal lesions and minute intracellular coccoid and bacilliform inclusions. The lesions were paralleled by some of those seen in material from the first human case of our laboratory outbreak, and precisely similar inclusions were seen in the lungs of that case. This autopsy is being reported elsewhere by Lieutenant Commander Wildman, Medical Corps, United States Navy, to whom the writer is indebted for the material referred to.

PARROT NO. 3

On January 16, parrot No. 3, was placed in a cage with part of the carcass of a sick parrot which had been killed on January 15, and which had been associated with a typical human case in Baltimore. On February 1 the drinking water for this bird was contaminated with the sputum of another human case. Death occurred on February 20. The autopsy was done by Surg. G. W. McCoy and the tissues were fixed in Orth's fluid.

Grossly there were fine hemorrhagic spots in the omentum, the liver was enlarged, its edges rounded. There was clear yellow serous fluid in the pleuro-peritoneal and pericardial cavities.

The histologic findings were as follows:

Lung.—There are scattered areas of alveolar wall anemia, in which the capillaries are occluded and blood-free, many of the cell nuclei

have disappeared and other large leptochromatic nuclei are well preserved. There appears to be some interstitial serous exudate. No inclusions are seen. Another section of lung appears normal. In a third section what appears to be visceral pleura shows marked irregular thickening with several layers of large opaque or finely vacuolated polygonal cells among which are some erythrocytes and a few leucocytes. The polygonal cells at the surface are partly rounded up and some free rounded cells lie on the surface. Frequently these mesothelial cells contain minute deeply basophil coccoid and bipolar bacillary inclusions. Numbers of rather small cocci in irregularly packed masses are also seen in and among these cells. Both the cocci and the inclusions are Gram-negative.

Voluntary muscle.—Cloudy, granular, striation obscured. Some transverse fragmentation.

Heart.—Fibers mostly plainly striated; strings of oxyphil granules between fibrillae and in the cytoplasm at the poles of the nuclei. A moderate amount of fat in the epicardium.

Omentum.—Superficial mesothelial thickening and proliferation, exudate of necrobiotic cells on surface; beneath, considerable infiltration by coarsely granular eosinophil leucocytes, lymphoid cells and coarsely vacuolar macrophages.

Bone marrow.—An occasional small patch of serous exudation, sometimes with minute bacilli in the exudate. Other points show isolated cells filled by very minute inclusion bodies like those described in the liver. No focal necroses. Coarsely granular eosinophil myelocytes predominate.

Small intestine.—Moderate surface desquamation of epithelial cells of the villi.

Kidney.—Epithelium in secreting tubules moderately cloudy and granular. The fibrous cores of the glomeruli contain numerous nuclei and appear larger than usual. The glomeruli contain little blood, and the epithelium is in one to two layers on the surface.

Liver.—Scattered focal coagulation necroses in which liver cells are oxyphil, hyalinized, without nuclei or with karyolysis near the margins. In some of the cells (apparently Kupffer cells) in the lesions are masses of very minute deep blue stained inclusions, some appearing as points, others as minute rods. Masses of fibrin appear in parts of the necrotic foci. In some areas well stained endothelial cells remain between necrotic liver acini. Margination of the foci against surviving tissue is abrupt. Diffusely there is a little patchy lymphoid cell infiltration between the acini. The Kupffer cells are often swollen and vacuolated, often contain yellowish-brown pigment, and frequently clumps of the same very minute coccoid and bacillary inclusions.

Bile duct epithelium shows considerable desquamation within dilated ducts, the desquamated cells being large, round, vacuolated, with swollen nuclei and clumped chromatin.

There are focal nodules of lymphoid cell infiltration and others of proliferation of pale staining, vacuolated, poorly defined spindle cells with pale vesicular nuclei containing a few medium-sized chromatin granules. Such nodules may also contain clumps of the minute inclusion bodies.

PARROT 5

On January 18, parrot No. 5, apparently healthy, was placed in a clean cage with part of the carcass of a parrot which had given rise to typical human cases of psittacosis in Zanesville, Ohio. No noticeable symptoms occurred. The bird was found dead in its cage on February 14. No gross pathology was noted by Surg. G. W. McCoy. The histological findings were as follows (Orth's fluid fixation):

Lung.—Appears congested. Apparently no focal lesions. Here and there groups of mononuclear cells and fibroblasts containing irregular black (carbon) granules.

Muscle.—Fibers cloudy, part hyaline, part granular, with indistinct cross striation and much fragmentation.

Small intestine.—Lumen filled by poorly stained desquamated epithelial cells, villi covered by columnar epithelium. Prominent reticulum cells in a lymph follicle.

Pancreas.—Numerous islets, cells partly separated. Acini appear normal.

Heart.—Muscle fibers cloudy and granular; cross striation indistinct.

Liver.—Congested. There are small foci of coagulation necrosis of the liver cells abutting either directly upon surviving liver tissue or on a zone of lymphoid cell infiltration. There are reticulated masses of large vacuolated or narrow-bodied compact cells with vesicular nuclei and one to three prominent nucleoli. These foci may contain fragments of oxyphil, necrotic liver cells; others are densely packed with polymorphonuclear leucocytes or their fragments. There are also patches of interstitial infiltration with lymphoid cells. There were seen two small cysts lined with flattened epithelium and filled with large round cells containing pyknotic and fragmented nuclei. The Kupffer cells generally are enlarged, often containing hemosiderin. With phloxin, orange G and polychrome methylene blue there are found clumps of very minute deep blue stained intracellular coccoid and bacilliform inclusions in the Kupffer cells and in the epithelioid nodules. The bacilliform inclusions sometimes show polar granules. No other bacteria are seen.

TRENTON PARROT

A third bird, the "Trenton parrot," was received from Camden, N. J., where it had been associated with human cases. Owing to the then prevailing low temperatures, decomposition was much less than might have been expected. Autopsy was performed at once by Surg. G. W. McCoy and the material fixed in Orth's fluid.

Striated muscle.—Fibers waxy, hyaline, cross striation suppressed in places.

Heart muscle.—Fibers cloudy and granular, their cross striation apparent only on oblique illumination.

Lung.—Air spaces small, considerable blood in vessels, no focal lesions.

Marrow.—No focal lesions. Many myelocytes show coarse cytoplasmic vacuolation among their granules and denser staining nuclei than others.

Liver.—The acini are much broken up, their polygonal or wedge-shaped cells, often partly separated. Their cytoplasm is basophil, mottled, and moth-eaten in appearance. What appear to be ducts contain desquamated cells with karyorrhectic or swollen pale nuclei—in the latter often with densely stained clumps of chromatin. The capillaries and interacinous spaces contain numerous large and small lymphoid cells. The Kupffer cells are often swollen, vacuolated, or filled with yellowish-brown granular pigment, and not infrequently contain clumps of very minute coccoid or bacillary inclusions which stain deeply with polychrome methylene blue. Their diameter appears to be in the neighborhood of 0.2μ to 0.4μ , their length possibly twice that; most of them are coccoid, sometimes occurring in pairs.

There are foci of necrosis in which liver cell acini become oxyphil, their nuclei disappear, the cells then break down into amorphous oxyphilic masses, a network of fibrin appearing among them. In these foci the interacinous spaces are infiltrated with pyknotic and karyorrhectic lymphocytes, fibrin, centrally with cell debris. No leucocytes are present. There are other foci in which the liver cells have disappeared altogether and a net of fibrin includes more or less broken down lymphoid and endothelial cells.

One apparently fairly recent focal necrosis contains several clumps of very numerous extremely minute coccoid inclusions which apparently fill a cell in the margin of a sinusoidal space in one instance. Some of the organisms appear as definite rods about one micron long with deeper stained polar granules.

HUMAN CASE

In the human case (H. A., exposed to sick parrots, taken sick January 25 and died February 8) also the liver showed focal coagulation

necroses. These were usually infiltrated with polymorphonuclear leucocytes. The epithelioid cell nodules seen in the parrots were present also in the human case, here containing multinucleate giant cells of rather unusual type. No inclusions were found. However, in the pneumonic lung, where the exudate was composed largely of fat-laden large mononuclear cells, a few of these large mononuclear cells, both in the exudate and in the alveolar walls, were filled with closely packed very minute coccoid and bacilliform inclusions stained deep blue by Giemsa. These were estimated as between 0.2 and 0.3 μ in diameter and possibly 1.0 μ in length. A tendency to denser polar granule formation was noted.

COMMENT

In the other parrots and parakeets in which no focal lesions were found no such inclusion bodies could be demonstrated.

Morphologically the inclusions seen in the three parrots and in the human case were closely similar. In all they were Gram-negative, stained well by methods such as Giemsa or phloxin, orange G, and methylene blue; and often the formation of distinct deep blue polar granules in a light blue rod could be made out. In the parrot and in man they occurred in dense masses within cells of the monocyte, reticulo-endothelial or mesothelial type.

No reference to any such inclusions has been found in the accounts of any of the autopsies of human cases. However, most of the older cases were studied by methods unsuitable for the demonstration of such inclusions.

The small cocci described by Eberth (1880) and Wolff (1883) in parrots were extracellular, occupying the capillary lumina and invading the tissues. Some of these were described as oval, one-half micron long by half that width. While this size is not greatly different from that of the inclusions under consideration, their figures show distinctly larger cocci. The focal necroses of the liver described by Wolff were of the coagulative type, packed with organisms, lacking suppuration. In the illustration the cellular infiltration so prominent in our parrots was entirely lacking. The author feels justified in concluding that the condition studied by those authors, unassociated with human cases of psittacosis, is definitely not the same as that herein above described.

While no etiologic relationship to psittacosis is claimed for these inclusion bodies at this time, their presence in presumably infected parrots and in the human case is suggestive and merits further study.

To facilitate future reference to these inclusions it was thought advisable to name them. Such minute intracellular coccoid and rod-shaped Gram-negative organisms which have not been cultivated are usually designated as *Rickettsia*, in which genus it would appear

that they should provisionally be included. The specific name *psittaci* was chosen as indicating a connection with parrots. The name *Rickettsia psittaci* is herewith proposed and the species is defined as "minute Gram-negative intracellular coccoid and bipolar bacilli-form bodies of about 0.2μ to 0.3μ diameter, found in reticulo-endothelial cells, mesothelial cells, and large mononuclear cells of the parrot (probably *Amazon* sp.¹) and in large mononuclear cells in man, associated with, but without established relationship to, psittacosis."

SUMMARY AND CONCLUSIONS

The lesions seen in three parrots associated directly or indirectly with human cases of psittacosis are described and briefly compared with those in a human case.

Minute intracellular inclusions are described in human lesions and in the lesions in the parrots, and the name *Rickettsia psittaci* is proposed for them.

The evidence of a laboratory outbreak of the disease indicates that the virus (*sensu lato*) of psittacosis was present in some of the birds under investigation.

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SEAMEN WITH VENEREAL DISEASE IN THE PORT OF NEW YORK²

A COOPERATIVE STUDY PARTICIPATED IN BY THE AMERICAN SOCIAL HYGIENE ASSOCIATION, THE NEW YORK TUBERCULOSIS AND HEALTH ASSOCIATION, THE WELFARE COUNCIL OF NEW YORK CITY, AND THE UNITED STATES PUBLIC HEALTH SERVICE

Report prepared by ANNABEL M. STEWART, Research Bureau of the Welfare Council of New York City

FOREWORD

This report on seamen with venereal disease in the port of New York is more than a report in the ordinary sense. It contains all the data one may be led to expect from its title, and will undoubtedly be of great value as a reference document to all agencies concerned with the health and welfare of seamen. Much of it is new information, with a new point of view, and incidentally it illustrates how difficult it often is to learn what "the party of the first part" really

¹ This genus comprises some fifty species of which about thirty-five are imported commercially into the United States.

² This report is being published in consecutive issues of Public Health Reports. It will later be assembled and reprinted as a separate publication under the designation of "Reprint No. 1365."

thinks about plans for his welfare. In addition, the report presents an account of interesting teamwork among official and voluntary organizations for securing and preparing for publication needed information.

Fortunately, the United States Public Health Service, the American Social Hygiene Association, the Welfare Council of New York City, and the New York Tuberculosis and Health Association were all desirous of obtaining not only the facts, but the sailor's view of underlying explanations of the situation disclosed. The work has been done by drawing upon the combined facilities and personnel of these agencies, and setting up a working advisory committee representative of the health authorities and social and religious agencies concerned. They have had cooperation from seamen and shipowners, and representatives from these groups stand ready to help in putting into action such recommendations as grow out of the report. Every effort has been made to keep in view the seaman as a human being living his life under great difficulties and bewildering changes of environment. The essential data will be found readily accessible in the usual form of such medico-sociological studies. It is the hope of the advisory committee, however, that the report may also add something to the methodology of this type of inquiry.

The international conferences on health and welfare of seamen have impressed representatives from this country as having available a great deal of information about regulations and views on this subject of Government officers, shipowners, captains, and ship surgeons, but very little of opinions of the men themselves. One of the purposes of this study, therefore, has been to provide some data about alien seamen. About one-half of those interviewed were aliens, or at least foreign-born American citizens, invited to furnish information because of their knowledge of the international aspects of the problem.

Syphilis and gonorrhea are human contact diseases. Any factors, therefore, which increase or decrease the contacts of seamen in seaports or other cities affect the incidence of these diseases among the group. Such factors include, among others, education, familial relations, recreation facilities, availability of proper medical care, and law enforcement measures directed against commercialized vice. Our Federal Public Health Service has struggled with this many-sided problem from colonial days; shipowners and officers have been concerned with the ravages of these diseases; officials of seamen's unions have devoted their best efforts to devising a solution; and other official and voluntary agencies have helped in every way possible. It is evident that further advancement must come largely through organized cooperation of the community as a whole with the agencies

mentioned. The practical situation is not unlike that faced by the armies and navies of nations. Infections do not take place in the military reservations or on shipboard; and preventive and protective measures must be applied in the community in which soldiers and sailors find themselves when off duty. In the case of the seamen, however, diagnosis, medical treatment, and social service follow-up must likewise be arranged for by the community in a large proportion of cases.

The advisory committee hopes that this report, which has had the benefit of being prepared by the Research Bureau of the Welfare Council of New York City and the advantage of being published by the United States Public Health Service, will prove to be a useful contribution both to national and international studies leading to more effective provisions for reducing the morbidity and mortality of syphilis and gonorrhea among that great class of the population of all countries—the men who follow the sea. In dealing effectively with these diseases, this means protection of women and children as well as of men.

It has not been practicable in the body of the report to make personal acknowledgment of the willing assistance and cooperation, sometimes at considerable sacrifice, of the many agencies and individuals who have participated. Those directly concerned with the report are particularly indebted to the seamen themselves for their frank and friendly aid in supplying case histories and supplementary data.

WILLIAM F. SNOW, M. D.,
General Director,
American Social Hygiene Association.

CHAPTER I

INTRODUCTION

This study of seamen with venereal disease in the port of New York is a cooperative undertaking of the United States Public Health Service, the American Social Hygiene Association, the New York Tuberculosis and Health Association, and the Welfare Council of New York City. The subject was discussed in the Seamen's Service Conference of the Port of New York after its organization in 1924, and later in the Seamen's Section of the Welfare Council. Soon after this section was organized in 1927, to unite for common action the agencies working for seamen in and about New York City, it appointed a committee on venereal disease¹ "to look thoroughly into the ques-

¹ Members of this committee were Capt. Fritz Nelson (chairman), Salvation Army; Miss Madeline Oldfield, U. S. Marine Hospital, Hudson Street; and Miss Zdenka A. Polakova, U. S. Marine Hospital, Ellis Island.

tion of venereal diseases as relating to seamen and to prepare definite recommendations on the question of helping infected seamen to carry through to a finish the necessary medical treatment." From discussions in meetings of this committee and of the section as a whole, there gradually evolved the project for a questionnaire study of the merchant seamen who were under treatment for venereal disease in the three United States marine hospitals in the port of New York. The United States Public Health Service agreed to undertake this. Later the American Social Hygiene Association, the Social Hygiene Committee of the New York Tuberculosis and Health Association, and the Research Bureau of the Welfare Council of New York City assumed responsibility for various phases of the study and the expense involved therein. An advisory committee, consisting of the original committee on venereal disease and representatives of the cooperating agencies,² was constituted to "help in the administration of the study and in the evaluation of the material from time to time."

Tentative drafts of the schedule³ to be used in the study were submitted for criticism and revision to the members of the advisory committee and to others with technical knowledge of the subject.

Four carefully selected and well-trained workers, with experience in the field of social hygiene, were assigned to the study.⁴ One of these gave half time, carrying on the study in connection with her regular work at the hospital.

Field work began the 1st of February, 1928, and continued until the 1st of July. The plan was that the workers should interview all the venereally diseased patients in the hospitals during the period covered; that the hospital records and those of the social service department should be consulted, and, when necessary, that there should be conference with the physicians in charge of the case. Space was provided on the schedule for additional comments by the workers. These were often voluminous; they gave much additional material not required by the schedule and proved a source of valuable information. The lack of data as to certain particulars in the physical condition of the patients is due to incomplete hospital records. In other matters it is largely due to the fact that at Hudson Street Hospital it was difficult to secure answers to all the items on the schedule, since the men had to be interviewed when they reported to the clinic for treat-

² This committee consisted of Dr. Walter Clarke and Miss Mary S. Edwards, American Social Hygiene Association; Dr. Walter M. Brunet and Dr. Philip S. Platt, New York Tuberculosis and Health Association; Dr. C. H. Lavinder (chairman) and Dr. E. K. Sprague, U. S. Public Health Service, Miss Madeline Oldfield, U. S. Marine Hospital, Hudson Street; Miss Zdenka A. Polakova, U. S. Marine Hospital, Ellis Island; Rev. James C. Healey (chairman of seamen's section), American Seamen's Friend Society; Capt. Fritz Nelson, Salvation Army; and Miss Adaline A. Buffington and Miss Mary C. Jarrett, Welfare Council.

³ See Appendix.

⁴ These workers were Mr. Samuel Auerbach, Miss Madeline Oldfield, Miss Zdenka A. Polakova, and Mrs. Berthe M. Rice.

ment and the time they could spare was often limited. At the other two hospitals the patients were living in the institution and so were more easily seen.

The plan at first proposed to confine the study to seamen of the American merchant marine. Later it was decided to include 102 seamen employed on foreign ships, who were detained at Ellis Island by Bureau of Immigration officials for repatriation because of venereal-disease infections, 60 members of the United States Coast Guard, and 10 others, scattered among employees of the United States Army Transport Service, Harbor Engineering Corps, and the Lighthouse Service. But the study is predominantly concerned with merchant seamen, since they constituted 82 per cent of the total. No consideration has been given to the problems of women employed at sea. As compared with men, their numbers are small. They are eligible for treatment under the same terms as for men.

The many difficulties encountered and the time involved in lengthy interviews with the men, interpreters at times being required, made progress slower than had been anticipated. By July 1, 1928, 888 schedules had been completed; but as the advisory committee was of the opinion that a larger sample was desirable, arrangements were made for two of the workers to give sufficient additional time to bring the number of schedules up to at least 1,000. Some of the completed schedules were later eliminated as not being sufficiently detailed in essential items, and the number in the final tabulation was 961. Percentages have generally not been calculated in the tables throughout the report, since the number of cases is so near 1,000 that in most instances the figures themselves very nearly indicate the percentages.

When the questionnaires had been completed, the cooperating agencies decided to enlarge the scope of the study and include in the report such other phases of the subject as number of seamen in the port, number of cases under treatment in the hospitals and venereal-disease clinics, United States laws and regulations relating to provision for treatment, practice of shipping companies in the employment of venereally infected seamen, social facilities available in the port, and work of international organizations directed against the venereal diseases, particularly as this relates to seamen. The further data required were not always available through the cooperating agencies, and the research bureau of the Welfare Council had to undertake the collection of this information in addition to the writing of the report.

In the preparation of the report valuable assistance was given by Mrs. John G. Rolph, who prepared the accompanying map, and by various members of the advisory committee, in particular Miss Polakova, Miss Oldfield, and the Rev. Mr. Healey.

It has not been possible to ascertain what ratio the sample of 961 cases bears to the total number of patients under treatment in the marine hospitals for the period covered by the study or for the year as a whole; hospital figures for the fiscal year 1928 gave numbers of cases and not numbers of individuals treated, since patients discharged from treatment and readmitted during the course of the year were counted as new cases; but during the more than five months devoted to the questionnaire study the great majority of patients under treatment were interviewed and the sample is considered typical of the whole body of hospital cases of venereally diseased seamen.

CHAPTER II

NUMBER OF SEAMEN IN THE PORT

In a study relating to seamen in the port of New York the question naturally arises as to the number of these men who enter and leave the port during any particular period or who might be found there on an average day. Such figures are not available, but there are statistics which cover certain groups. Seamen's agencies have made estimates of the average number to be found in port daily, and in connection with this study an attempt was made to verify these estimates and to arrive at as definite a figure as possible.

As commonly used, the term "seaman" is a comprehensive one and includes the men employed on the thousands of vessels, from "tramps" to the famous liners, which arrive and clear, carrying passengers and freight in the foreign, intercoastal, and coastwise services. Then to these must be added the employees on local yachts, excursion boats, towboats, barges, and fishing boats. In this report the term is used in this broad way, for it has been provided in legislation relating to the Marine Hospital Service that the "term 'seaman' shall be held to include any person employed on board in the care, preservation, or navigation of any vessel, or in the service, on board, of those engaged in such care, preservation, or navigation;" and "the term 'vessel' includes every description of water craft or other artificial contrivance used, or capable of being used, as a means of transportation on water."

The seamen's act defines a seaman in the following terms: "Every person (apprentices excepted) who shall be employed or engaged to serve in any capacity on board any vessel belonging to any citizen of the United States shall be deemed and taken to be a seaman; and the term 'vessel' shall be understood to comprehend every description of vessel navigating on any sea or channel, lake or river."

The seamen's unions apply the term only to men whose work is on the sea in foreign and coastwise services and designate the others as harbor workers. Except in the case of the industrial union for all

marine workers, seamen and harbor workers are organized in separate unions.

The area comprised in the port of New York, as defined in the act which in 1921 created the Port of New York District and the Port of New York Authority, includes almost 1,500 square miles. It is located in the two States of New York and New Jersey, comprises some 200 municipalities, and has a waterfront of 771 miles. The accompanying map includes only the part of this area in which the seamen's agencies are particularly interested.

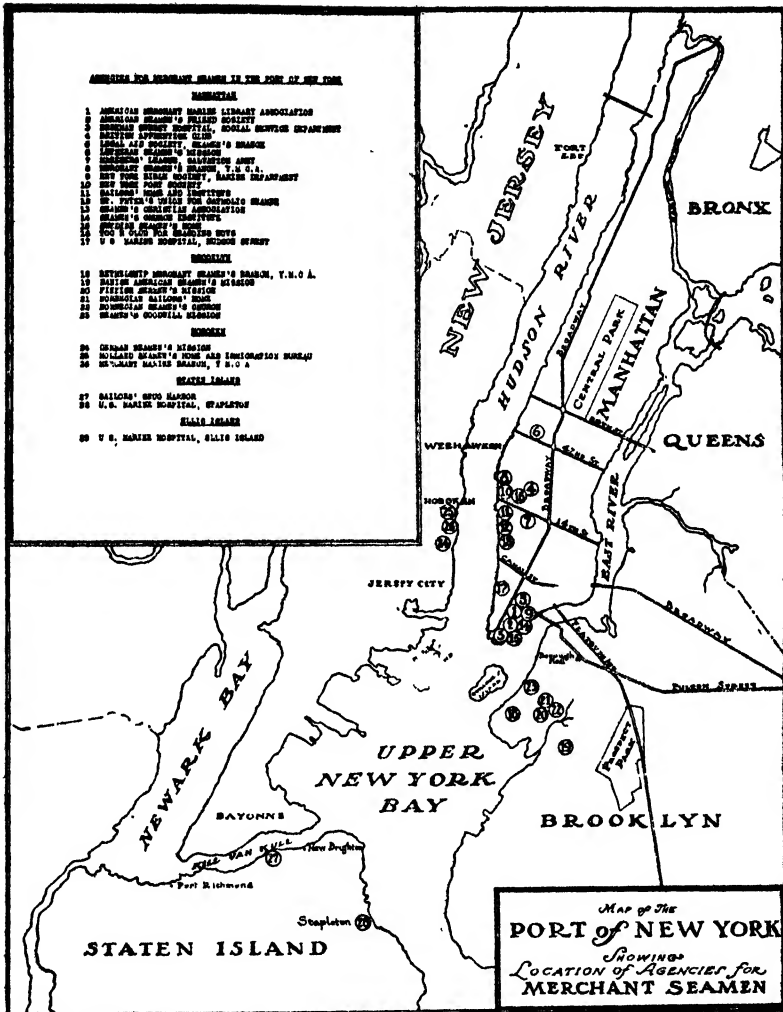
Most of the great trans-Atlantic liners dock along the Hudson River on the New York side from Fourteenth to Fifty-ninth Street, with the Cunard and White Star piers at the lower end of this stretch and the Italia America at the upper. If the projected improvements on the Manhattan waterfront from Thirty-ninth to Fifty-ninth Street are carried out and the piers lengthened to dock vessels a thousand feet long, this will become a very important section, and may result in the relocation of the piers for some liners. Many steamship companies are located in Hoboken, among these the Holland-America, the Scandinavian American, and the United States Lines. Most of the freight lines dock in Brooklyn, and some passenger ships, notably the North German Lloyd's *Bremen*. The "banana trade" is centered on the Manhattan side of the East River. From there such well-known lines as Munson, Ward, United Fruit, and Atlantic Navigation serve the West Indies and Central America.

The map indicates in a general way the strategic location of the seamen's agencies, which may be easily reached from all points at which seamen may land along the many miles of wharfage in the port.

The seamen's occupation is largely a seasonal one, especially in the trans-Atlantic passenger service, in which the season is from June to October, although the increasing number of winter cruises helps to take up the slack. In winter many vessels are laid up in dry dock for repairs. The closing of the Great Lakes about the 1st of December throws hundreds of seamen out of work; for the only hands employed until the opening of navigation the next May are watchmen for the laid-up passenger steamers and freighters. Many of these men come to New York and live there through the winter, picking up an occasional berth at sea or odd jobs on land. Whether shipping is brisk or slack, seamen tend to congregate in the port of New York.

Actual figures as to the numbers of seamen to be found in the port are not available and can not be secured, since the various sources of official information enumerated below do not cover the whole situation.

An enumeration made in connection with the 1920 census showed 302 "boats" in New York City on January 1, 1920, and 20,104 seamen



Agencies for merchant seamen in the port of New York. *Manhattan* 1, American Merchant Marine Library Association; 2, American Seamen's Friend Society; 3, Beekman Street Hospital, Social Service Department; 4, British Apprentice Club; 5, Legal Aid Society, Seamen's Branch; 6, Lutheran Seamen's Mission; 7, Mariners' League, Salvation Army; 8, Merchant Seamen's Branch, Y. M. C. A.; 9, New York Bible Society, Marine Department; 10, New York Port Society; 11, Sailors' Home and Institute; 12, St. Peter's Union for Catholic Seamen; 13, Seamen's Christian Association; 14, Seamen's Church Institute; 15, Swedish Seamen's Home; 16, Toc H Club for Seagoing Boys; 17, U. S. Marine Hospital, Hudson Street. *Brooklyn* 18, Betheship Merchant Seamen's Branch Y. M. C. A.; 19, Danish American Seamen's Mission; 20, Finnish Seamen's Mission; 21, Norwegian Sailors' Home; 22, Norwegian Seamen's Church; 23, Seamen's Goodwill Mission. *Hoboken* 24, German Seamen's Mission; 25, Holland Seamen's Home and Immigration Bureau; 26, Merchant Marine Branch, Y. M. C. A. *Staten Island* 27, Sailors' Snug Harbor; 28, U. S. Marine Hospital, Stapleton. *Ellis Island* 29, U. S. Marine Hospital, Ellis Island.

and harbor workers comprising their crews. The figures for the personnel of these boats, it is reported, were secured by the enumerators from the offices of the shipping companies, and the assembly districts were then credited with the number represented by crews of vessels tied up at docks in their respective districts. These men were obviously not all residents of New York City, since foreign as well as American vessels were in port. Similar figures were not secured for the other towns and cities which form part of the port of New York, particularly those across the Hudson River in New Jersey, so that in the 1920 census a figure is not available for the port of New York, but only that part comprised in New York City.

The 1920 census gave figures also for those living in New York City who were engaged in "water transportation." The total was 21,278, and similar figures for other cities and towns within the area of the port of New York added 3,113 to this number. These more than 24,000 men come and go, although presumably New York is their home port. They are only a part of the great army of seamen to be found in New York at any given time. Many others who have sailed from other ports of the United States or from foreign ports on ships of foreign registry are here, some for only a few days, others for a much longer time. Shipping has greatly increased since 1920, and the 1930 census will undoubtedly show a larger number of residents engaged in these occupations.

The Maritime Register compiles figures on numbers of vessels arriving and sailing from the port of New York, classified as foreign, American, and coastwise, and prints each week the list of vessels in port on the day of publication. But for any given period these figures count a vessel each time it enters and leaves the port. In July, 1929, it reported 991 vessels entering the port. From foreign ports there were 598, of which 377 were of foreign and 221 of American registry; from coastwise ports there were 393, of which 372 were American and 21 "foreign coastwise." In these figures there are duplications with more than one sailing during the month of trans-Atlantic liners and coastwise vessels and the daily schedule of sailings, for instance, between New York and Boston. All of the coastwise vessels were not included in the above figures, nor were the local excursion boats, tug boats, lighters, barges, and scows in the harbor. Numbers in the crews are not published.

The United States shipping commissioner, at the Barge Office, discharges, ships, and reships crews on all vessels flying the American flag which sail to foreign ports and to ports on the Pacific Ocean, and on some coastwise vessels. Through this office, 149,755 seamen were shipped or reshipped (that is, "signed on" the ship from which they had just received their discharge, for its next voyage) during the year ended June 30, 1929. The figure for July, 1929, was 11,208.

Here again there are duplications, for a man is counted as many times as his vessel is in port. The figures include none of the local boats and only a part of the coastwise vessels, since the signing of shipping articles and of discharges at the commissioner's office is optional for coastwise vessels.

The Immigration Service at Ellis Island has a record of the number of alien seamen who enter the port, since they all must undergo a physical and mental examination. For the fiscal year ended June 30, 1929, there were 550,852 alien seamen entering the port. For the month of July, 1929, the figure was 50,928. These figures include aliens on American ships as well as the crews of foreign ships and count a sailor each time he enters the port.

The United States customhouse at Bowling Green enters and clears all vessels in the foreign trade and those in the coastwise trade which carry bonded goods. Their records contain the number of the crew. For the year ended June 30, 1929, the vessels that entered numbered 11,063 (6,934 foreign and 4,129 coastwise) and those that cleared, 10,997 (7,044 foreign and 3,953 coastwise). In July, 1929, the entrances were 991 (598 foreign and 393 coastwise) and the clearances 947 (593 foreign and 354 coastwise).

Various estimates have been given by the seamen's agencies as to the number of seamen in the port of New York, the most common being that on any one day an average of 20,000 seamen enter the port. Some have estimated the average stay in port of the vessels on which they arrived as three days, so that on any given day the number of seamen in port may be 60,000.

A very different figure is contained in the estimate made in the office of the Port of New York Authority at the request of one of the seamen's agencies. On October 3, 1928, considered to be an average day, the Maritime Register listed 259 vessels in port. The average stay of these vessels was estimated to be from 7 to 10 days and the average of the crews between 80 and 90. From these figures it was concluded that, roughly, some 3,000 seamen arrived in port daily and that from 20,000 to 25,000 might be in port on a given day. These figures did not take into account workers in the harbor service, since, as has previously been indicated, figures for these boats are not included in the Maritime Register figures.

The Seamen's Service Conference, in a report for 1918-1919 stated: "It is generally estimated that when shipping is normal, approximately 100,000 seamen a month come to this port." An estimate in 1927, from another source, stated that foreign vessels coming into the United States carried about 1,000,000 seamen annually, 450,000 of whom came into the port of New York. This gave a monthly average of 37,500 foreign seamen.

In connection with this report it was decided to attempt a calculation to obtain as accurate a figure as possible as to the number of seamen arriving in port during a particular month and the average number to be found there on any one day. The month of July, 1929, was chosen, after consultation with several persons versed in maritime affairs, as a good average month. While this might represent the height of the trans-Atlantic tourist traffic, the increasing number of winter cruises and the number of ships required in December and January in the sugar trade tend to make the volume of shipping more regular throughout the year.

The list of vessels arriving during the month was secured from the Journal of Commerce and the New York Herald-Tribune, the newspapers in New York City which publish the most complete maritime news. They print each day a transcript of the customhouse record of all vessels which entered and cleared on the previous day, and to this list add as many names as possible of coastwise vessels that are not required to enter or clear through the customhouse. All coastwise vessels are not listed.

By courtesy of officials at the customhouse, the number recorded for the crew of each vessel was obtained. The date of sailing was then ascertained and from it the number of days the ship remained in port. For crews of the coastwise ships which appeared in the newspaper lists but which were not required to observe customs formalities, recourse was had to "Merchant Vessels of the United States." This 1,000-page volume, published by the Bureau of Navigation of the Department of Commerce, lists alphabetically the vessels of the United States belonging to the merchant marine and gives their home port and number in the crew.

The crews on vessels of foreign registry return with their ships. For American ships the personnel of passenger vessels does not change greatly. This is true also for tankers and certain of the freight services. The shifting from one vessel to another occurs most frequently in the cases of freighters that remain in port several weeks or that have returned from long voyages. The number of these and the size of their crews are both small in comparison with totals for vessels and crews and would affect the daily averages only slightly.

Allowance was also made, as far as possible, for vessels which had entered port before the 1st of July and which cleared during the month. There is no way of ascertaining the number of seamen who arrived in port before the 1st of the month or during the month but who remained for medical treatment or because they could not secure another berth, or the number of those discharged in other ports who made their way to New York other than as members of a crew.

This compilation gave the number of arrivals of seamen in the port during the month and the number of "seamen-days in port" for these

arrivals, with allowance also for those whose vessels had come in before the 1st of the month and cleared during the month. It showed 1,135 vessels arriving during the month, or a daily average of 37.

Numbers of members of the crews were obtained for all but 26 of the 1,135 vessels. These were freighters, with possibly one exception. The total crew arrivals for the month was 93,755 (43,937 on vessels of American registry and 49,818 on vessels of foreign registry), or a daily average of 3,024 (1,417 American and 1,607 foreign).

If to this were added crews of the 60 vessels which arrived before July 1 but cleared during the month, the total becomes 98,725 (46,384 American and 52,341 foreign), or a daily average of 3,184 (1,496 American and 1,688 foreign).

These vessels remain in port varying numbers of days and a multiplication of the number in the crew by number of days in port gave figures for "seamen-days in port." For the crews of 83 of the vessels these "seamen-days in port" could not be calculated, because either the number in the crew or the number of days in port was lacking. These vessels were freighters with but very few exceptions.

This tabulation gave a total of 353,862 "seamen-days in port" (141,030 American and 212,832 foreign), or a daily average of 11,415 (4,549 American and 6,866 foreign).

The "seamen-days in port" for vessels which had arrived before the 1st of the month and cleared during the month added to the above figures for arrivals during the month gave a total of 368,026 (146,763 American and 221,263 foreign), or a daily average of 11,872 (4,734 American and 7,138 foreign).

The workers on boats in the harbor, who also are entitled to the facilities of the Public Health Service and of the seamen's agencies, were estimated, after consultation with employer and employee groups among them, to number from 13,000 to 14,000. These men, perhaps, are not so important in a consideration of the problems involved with seamen in the port, for they are likely to be established locally and to have their own community relationships. Long-shoremen are not included among "harbor workers."

Although the figures are not complete, particularly because all coastwise vessels are not included, the compilation represents, as far as could be learned, the first serious effort to secure a fairly accurate figure on the number of seamen in the port. While the fluctuations from day to day are considerable, the compilation shows that at least some 3,200 seamen on an average arrive in the port of New York daily, and that on any day an average of at least some 11,500 may be found in port.

CHAPTER III

NUMBERS TREATED AND ANALYSIS OF CASES

EMPLOYMENT DISQUALIFICATION A FACTOR IN REDUCING NUMBER TREATED

Each year the annual reports issued by the United States Public Health Service record the venereal diseases "as contributing the largest single factor among the conditions which bring merchant seamen and other beneficiaries of the Public Health Service under its care in the United States marine hospitals and out-patient offices."

The seamen's act of 1915 requires, with certain modifications, that of the seamen manning an American vessel at least 65 per cent of the deck crew must approach a satisfactory health standard and be physically competent to perform certain emergency duties. Before a sailor can be certified by boards of local inspectors as an "able seaman," he must be given a physical examination under rules prescribed by the Department of Commerce. While the wording can be construed to cover examination and rejection for venereal disease, no provision is made in the act for the examination contemplated, and it is assumed that the burden of demonstrating the physical fitness of seamen falls upon the owner of the vessel. The Public Health Service, however, at the request of the owner, may examine a seaman already in service.

Interstate quarantine regulations of the United States provide that on a vessel in operation in interstate traffic "no person shall serve as a cook, waiter, or in any other capacity in the preparation or serving of food * * * who is known or suspected to have any communicable disease." All persons employed for service of this kind are required to undergo a physical examination by a competent physician before being assigned to service and at such other times during their period of service as may be necessary to determine their freedom from such diseases.

Foreign steamships entering the port of New York are careful regarding the employment of venereally diseased seamen, since the immigration laws of the United States impose a fine on the owner of any vessel bringing to the United States from a foreign country any alien afflicted with a venereal disease when the existence of such disease might have been detected by means of a competent medical examination at the time when the alien was taken on board the vessel. These provisions of the immigration law have the effect of bringing about frequent examination of seamen employed on vessels of foreign registry plying between the United States and other countries and of excluding from the United States seamen found infected.

A number of steamship companies require a physical examination of applicants for employment and certain of them reject men infected with a venereal disease. The United States Shipping Board, for ex-

ample, through its sea service bureau, established for its fleet the policy of not employing men having a venereal disease, and the Standard Oil Co. of New Jersey, operating one of the largest fleets of steamers under the American flag, has "a very strict rule that all applicants for employment on any vessel of their fleet, whether licensed or unlicensed seamen, shall be physically examined before they are accepted. This includes an examination for venereal disease."

In addition to the two organizations mentioned above, 10 others out of the 19 interviewed in a survey of venereal-disease control measures in the shipping industry at the port of New York, made in January, 1929, by the United States Public Health Service as a part of this study, reported that examinations were made before employment and men with venereal infections were rejected. In the cases of two companies, this applied only to the crews of their passenger ships and no examination was made of crews of the freight ships. Seven lines operating freighters, cargo boats, or tankers took on their crews without examination.

The report on this survey summarized the situation with reference to examinations as follows:

One of the outstanding facts brought out by the survey is that there is no uniformity of practice in the control of venereal diseases on ships operating out of New York. While a number of the companies make physical examinations of crews and others have made arrangements to have the examinations made by outside firms furnishing medical examination service, there are some which make no examinations whatever. This is of particular importance for the reason that the exclusion of venereal disease cases from employment can not be expected to become effective as a preventive measure until enough companies have adopted the practice to make it difficult for the infected seamen to find work.

From the information obtained in the interviews with medical officers it is believed that where medical examinations and inspections are made they can be expected, under present conditions, to be only fairly effective in the weeding out of venereal disease cases among seamen employed or applying for employment. Laboratory examinations are said in most instances to be made only in special cases, and the 3-glass test for gonorrhea is made only when the disease is suspected from other objective findings. In most cases the frequency of the inspections appeared to be sufficient if their character were improved. It is probable, however, that the companies making the examinations pick up a large proportion of the acute cases of gonorrhea and its complications and most of the "open" cases of syphilis. Medical examination and inspection should be arranged for by every company, and if they are to be made highly effective in the detection of venereal disease, they should include at least the routine employment of the urine test for gonorrhea.

It may be added that even though the general policy of a steamship company might require an examination before employment and the rejection of men suffering with venereal disease, there would probably be a less strict application of the policy at the height of the season when sailors were in demand and it was difficult to secure a crew.

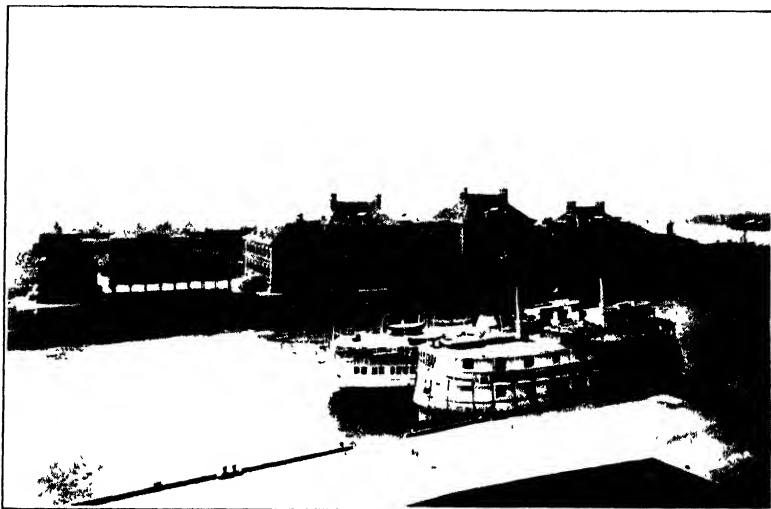
NUMBERS OF PATIENTS TREATED IN 1928

The total number of seamen in the port of New York who are diagnosed in a given year as having a venereal disease is not known. Free treatment is available at the three United States marine hospitals—Ellis Island, Stapleton (Staten Island), and Hudson Street (Manhattan)—for seamen on ships of American registry who are suffering from syphilis, gonorrhea, and chancroid. The Hudson Street Hospital is operated solely as an out-patient service. Figures for the fiscal year 1928 are available for these hospitals. The great majority of seamen receiving any treatment in the port of New York undoubtedly secure it at the marine hospitals; but it is known that some are treated at venereal disease clinics and at other hospitals. Figures for the clinics were secured for the calendar year 1928.

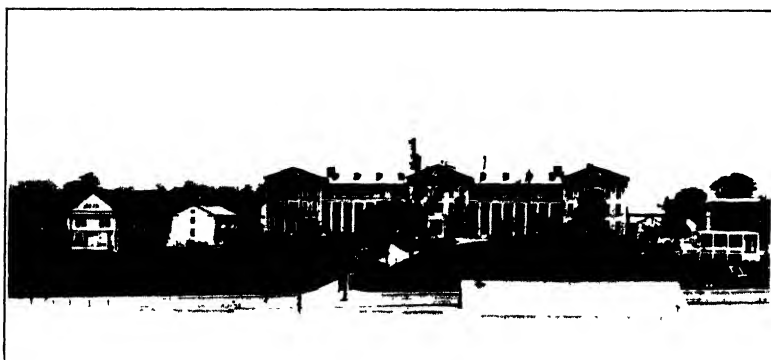
While certain of the steamship companies of foreign registry maintain "contract wards" at various hospitals for the officers and men of their ships who are not eligible for free treatment at the marine hospitals, the number of men treated there for the venereal diseases was undoubtedly small. Some officers and men from American vessels, entitled to treatment at the marine hospitals, prefer to secure that treatment from private physicians or at other hospitals. The desirability of obtaining the number of such seamen was recognized when the study was being planned. It would have involved the examination of records for thousands of patients to sort out those for seamen, and expense prohibited the undertaking.

Patients at United States marine hospitals.—The Public Health Service has made a special study of its records to determine the number of cases of venereal disease treated at the port of New York for the fiscal year 1928. Figures for the hospitals at Ellis Island and at Stapleton, classified by beneficiary and type of venereal disease, are given in the accompanying table. For the out-patient hospital at Hudson Street the figures were less detailed, and those given for admissions to the clinics include cases of seamen entering for treatment for other skin and genito-urinary diseases as well as for the venereal diseases.

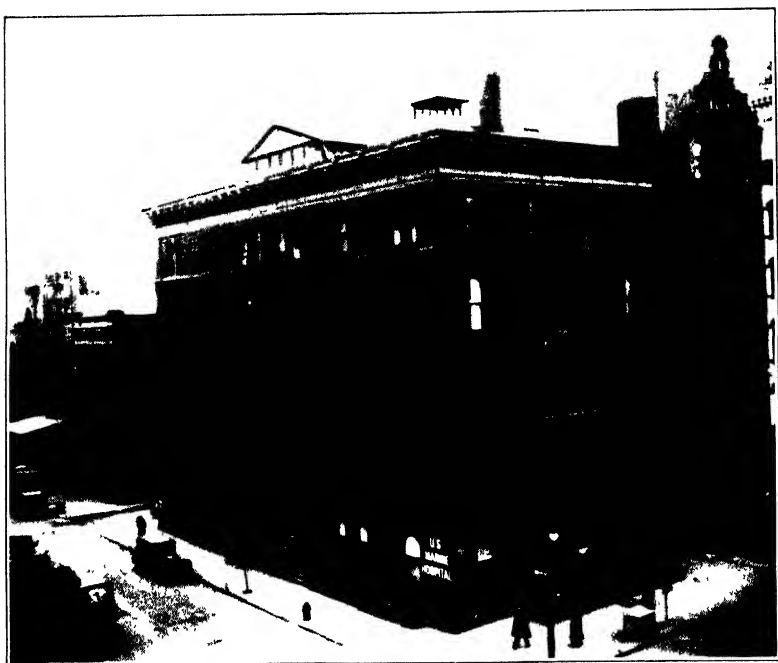
It was not found practicable to obtain the number of foreign seamen (or seamen employed on vessels of foreign registry) and alien seamen (or immigrant seamen) given relief by the United States Public Health Service; but it is known that the number of foreign seamen, exclusive of aliens, treated in the course of a year is comparatively small. The Hudson Street Station estimates that it treats not more than three or four foreign patients in a month. The two hospitals mentioned above also report a small number of patients in this class. While data on alien seamen treated were not readily available, it was estimated that the number of venereally diseased patients among aliens treated daily at the Ellis Island Hospital averages about 30.



UNITED STATES MARINE HOSPITAL AT ELLIS ISLAND, N. Y.



UNITED STATES MARINE HOSPITAL AT STAPLETON (STATEN ISLAND), N. Y.



UNITED STATES MARINE HOSPITAL, 67 HUDSON STREET, NEW YORK CITY

The patients were classified according to beneficiary and type of venereal disease. The number of patients so classified who had a diagnosis of one or two of the other venereal diseases is indicated.

TABLE 1.—All discharged hospital cases treated at Ellis Island and Stapleton marine hospitals during the fiscal year 1928,¹ classified according to beneficiary and type of venereal disease

ELLIS ISLAND HOSPITAL

Beneficiary	Total	Gonococcus infection	Syphilis	Chancroidal infection
Total.....	654	357	165	132
American seamen.....	480	227	140	113
Coast Guard.....	166	125	23	18
All others.....	8	5	2	1
Number of patients whose diagnosis showed more than 1 venereal disease.....	157	25	59	78

STAPLETON HOSPITAL

Total.....	532	260	196	76
American seamen.....	457	234	183	70
Coast Guard.....	18	13	3	2
All others.....	27	13	10	4
Number of patients whose diagnosis showed more than 1 venereal disease.....	58	4	25	29

¹ July 1, 1927-June 30, 1928.

² Data not available for alien seamen detained for deportation.

TABLE 2.—All patients treated at Hudson Street Hospital during the fiscal year 1928¹

Cases admitted skin and syphilis clinic.....	4,828
Cases admitted genito-urinary clinic.....	2,009
Cases treated as syphilis.....	517
Cases treated as gonorrhea.....	1,500

¹ July 1, 1927-June 30, 1928.

² Estimated.

It would thus appear that the two hospitals at Ellis Island and Stapleton treated 617 cases of gonorrhea, 361 cases of syphilis, and 208 chancroidal infections in a year. Hudson Street Hospital estimated that it treated 1,500 cases of gonorrhea and 517 cases of syphilis. Thus 2,117 cases of gonorrhea, 878 cases of syphilis, and 208 cases of chancroid were reported. It is probable that there is some duplication of "cases" between these three institutions and that one man may have been more than one "case" in the course of the year even in the same institution. The number of men therefore is somewhat less than these figures would indicate. Perhaps we may assume that possibly 2,500 different men are represented. Against a background of thousands of seamen in the port who are eligible to receive free treatment when needed, it would seem that comparatively

few men in a given year are receiving treatment for these diseases at the hands of the United States Public Health Service.

Patients at locally maintained venereal-disease clinics.—As a part of this study, the Associated Out-Patient Clinics Committee of the New York Tuberculosis and Health Association made a survey of the venereal-disease clinics in New York City to which seamen might apply for treatment. The main purpose of the inquiry was to ascertain the extent of available facilities and the number of seamen treated annually for the venereal diseases. A further attempt was made to secure additional information that might throw light on the subject as a whole.

Forty-two institutions in New York City maintaining out-patient services for the treatment of syphilis and gonorrhea were approached. The questions on a prepared list were answered quite fully by the several institutions which had treated any considerable number of seamen. Those institutions were able to answer the questions satisfactorily which had records on file in the clinic or which had a cross-index file designating "occupation" kept in the clinic or social service department. The staff of the New York Tuberculosis and Health Association assisted in compiling the information from four clinics that claimed to be treating an appreciable number of seamen but did not have staff available to check the records and ascertain the number. The detailed list of these clinics and number of cases reported for each is given in the appendix.

Where records were not accessible and where such information was given as, "We rarely treat seamen and remember only one or two who were treated during the past year," the estimate of the institution was accepted, as it was not considered practicable to spend the time required to check thousands of records for so few patients.

The clinics were asked whether there had been an increase or decrease in the number of seamen applying for treatment within the past year. The majority of the answers reported no marked change. A few reported a decrease but none reported an increase.

This inquiry brought to light 299 as the total number of seamen treated during the calendar year 1928 for gonorrhea and syphilis at other venereal-disease clinics in New York City than those of the Public Health Service at Hudson Street and its substation at Seamen's Church Institute. Approximately one-quarter were cases of gonorrhea; three-quarters of syphilis. During this same period approximately 2,000 cases were treated at the Hudson Street clinic alone. Figures were not obtained for venereal-disease clinics in other parts of the port. Thus there were some 2,300 clinic cases, and at Ellis Island and Stapleton Hospitals perhaps as many as 1,200 hospital cases, a total of some 3,500 cases of seamen treated for

the venereal diseases in clinics and marine hospitals in the port of New York during the calendar year 1928. The numbers would be somewhat larger were figures at hand for the other clinics in the port.

CHARACTER AND HISTORY OF INFECTIONS FOR PATIENTS STUDIED

The sample study was undertaken in the hope of finding out something of the sailors' points of view as well as all the significant social and physical characteristics of a group of infected seamen who are threatened with incapacity in the future and who are a menace as disease-carriers to those with whom they come into close personal contact. It sought to discover the kind of men they were, their ages, nationalities, other characteristics, and primarily the diseases with which they were affected.

Disease and stage of infections.—Table 3² indicates the distribution of these seamen according to the diagnosis at the time they were interviewed for this study. It will be seen from the table that in this body of 961 men there were 629 with gonorrheal infection, 331 with syphilitic infection, and 81 with chancroid only. In 80 cases the men were diagnosed as having both gonorrhea and syphilis. In 12 instances the men had acute gonorrhea and early syphilis. Over one-fourth of the men were chronic cases of one or both diseases—153 had chronic gonorrhea, 114 late syphilis, 15 both diseases in the later stages, and one had both diseases in the later stages combined with chancroid. In 88 cases the schedules failed to report the stage of the disease found alone or in combination.

TABLE 3.—*Patients studied classified according to disease and stage of infections*

Disease and stage of infection		Number of patients
Total.....		961
Gonorrhea only.....		527
Stage—		
Not specified.....		41
Acute.....		333
Chronic.....		153
Syphilis only.....		226
Stage—		
Not specified.....		14
Early.....		98
Late.....		114
Gonorrhea and syphilis.....		75
Stage—		
Gonorrhea	Syphilis	
Not specified..	Not specified.....	3
Not specified..	Early.....	4
Acute.....	Not specified.....	16
Acute.....	Early.....	10
Acute.....	Late.....	18
Chronic.....	Not specified.....	2
Chronic.....	Early.....	7
Chronic.....	Late.....	15
Chancroid only.....		81

² Material relating to physical condition of the patients was analyzed and tabulated in the office of the Social Hygiene Committee of the New York Tuberculosis and Health Association.

TABLE 3.—*Patients studied classified according to disease and stage of infections—*
Continued

Disease and stage of infection	Number of patients
Gonorrhea and chancreoid.....	22
Stage—	
Not specified.....	2
Early.....	17
Chronic.....	3
Syphilis and chancreoid.....	25
Stage—	
Not specified.....	4
Early.....	20
Late.....	1
Gonorrhea, syphilis, and chancreoid.....	5
Stage—	
Gonorrhea..... Syphilis.....	
Not specified..... Early.....	1
Acute..... Not specified.....	1
Acute..... Early.....	2
Chronic..... Late.....	1

Symptoms.—The course of the venereal diseases is of such a nature that in some stages symptoms may be of a disabling nature while at other times the presence of the disease may be detected only by means of tests of discharges or laboratory examinations of the blood or other fluids of the body. The stage of the diseases at which these seamen sought hospital and clinic care is indicated in Tables 4 and 5.

The symptoms for the 629 patients with gonorrhea were classified as follows:

TABLE 4.—*Patients with gonorrhea classified according to symptoms*

Symptoms	Number of patients
Total.....	629
Discharge.....	391
Joint involvements.....	12
Other gonorrheal symptoms.....	25
Discharge and joint involvements.....	19
Discharge and other symptoms.....	58
Discharge, joint involvements, and other.....	2
Joint involvements and other.....	1
None specified.....	121

Joint involvements were recorded as symptoms among the 629 men with gonorrhea in only 34 cases, or 5 per cent, and discharge in 470 cases, or 75 per cent.

The symptoms for the 331 patients with a diagnosis of syphilis were given in greater detail and were as follows:

TABLE 5.—*Patients with syphilis classified according to symptoms*

Symptoms	Number of patients
Total.....	331
Open lesion.....	87
Rash.....	23
Open lesion and rash.....	22
Paresis.....	2
Locomotor ataxia.....	2
Other nervous involvements.....	14
Aneurysm.....	2
Hemiplegia.....	2
Other vascular involvements.....	2
Visceral involvements.....	1
Open lesion and vascular involvements.....	2
Rash and vascular involvements.....	1
Open lesion and other nervous involvements.....	2
Locomotor ataxia and vascular involvements.....	1
Other nervous and vascular involvements.....	2
Other nervous and visceral involvements.....	1
Open lesion, rash, and other nervous involvements.....	1
None specified.....	164

In nearly 50 per cent of the cases there was no description of the manifestations of the disease. Among the other half (167 cases), 138 were described as having open lesions or rash or both. In 35 cases, or 11 per cent, it was reported that the disease had attacked the nervous or vascular systems or the viscera.

Number of previous infections.—The men reported the number of previous infections of gonorrhea and syphilis they had received prior to the infection, or combination of infections, which had brought them to the hospital at the time of the study. It is likely that most of the men who reported second infections of syphilis had a recrudescence of their original infection after a latent period. Four hundred and fifty-seven reported previous infections of gonorrhea and 124 of syphilis, although 355 of the former group and 119 of the latter stated they had received only one previous infection. Six men reported five or more previous infections of gonorrhea. There is an overlapping in these figures since some of the men reported previous infections of both diseases.

Diagnosis of first and subsequent infections.—An attempt was made to see the history of these cases from the beginning. Data on early infections are on the word of the sailor and he may have described as a subsequent reinfection what was really a case of long standing. Table 6 indicates the diagnosis at time of first infection, as reported by the patient, and this has been related to subsequent infections. The men have been classified into those who had gonorrhea or syphilis but reported no subsequent infection, and those who had one or the other of these diseases and reported subsequent infections of the same or the other.

TABLE 6.—*Diagnosis at time of first and subsequent infections*

Diagnosis	Number of pa- tients
Total.....	961
Gonorrhea.....	303
Gonorrhea with subsequent syphilis.....	219
Gonorrhea with subsequent gonorrhea.....	178
Syphilis.....	174
Syphilis with subsequent gonorrhea.....	63
Syphilis with subsequent syphilis.....	24

The number of those who at the time of the interview were suffering from the first infection was nearly the same as the number who reported they had received subsequent infections—477 in the former condition and 484 in the latter.

From Table 6 it appears that 303 of the 700 men with an original infection of gonorrhea had only that one infection, while 178 stated that they were later reinfected with it and 219 contracted syphilis also. Of the 261 men first infected with syphilis, 174 continued with that one infection only, while 63 later contracted gonorrhea, and 24 stated that they were reinfected with syphilis.

Probable time since first infection.—Those who drew up the schedule were interested to learn how long a time had elapsed since the first experiences of the men with these diseases. The probable time since first infection was reported by all but 30 of them.

TABLE 7.—*Probable time since first infection*

Time	Number of pa- tients
Total.....	961
Less than 1 year.....	380
1 year.....	50
2 years.....	81
3 to 5 years.....	124
5 to 9 years.....	142
10 to 20 years.....	106
20 years and over.....	31
Not known.....	17
No data.....	30

Table 7 shows that almost two-fifths had received their first infection within a year, and two-thirds of them within five years.

Since many of these men had received previous treatment, both here and in other ports, no inferences can be drawn from these facts regarding the promptness with which treatment was sought. The fact that 29 per cent had been infected for the first time over five years before may mean that previous treatment was for some reason ineffective or that the men had exposed themselves to reinfection. Probably both conditions obtained.

Age at first infection.—The men were asked with which of the diseases they had first become infected and other particulars about that infection, such as the year, port, and source. The age at first infection was calculated from the items of date of birth and date of first infection, both recorded on the schedule. All but 13 specified which infection had been received first—gonorrhea, syphilis, or chancre. On some schedules both syphilis and gonorrhea were checked, the seaman evidently not being sure which had been the earlier. On 9 schedules there were no data at all as to first infection, and on 47 it was recorded that the men did not recall when first they became infected.

TABLE 8.—*Age at first infection*

Age	Disease					
	Total	Gonorrhea	Syphilis	Chancre	Syphilis and gonorrhea	No data
Total.....	961	633	107	58	55	13
14 and under.....	10	9		1		
15.....	11	10			1	
16.....	22	16	4		2	
17.....	72	43	6	1	2	
18.....	49	35	7	4	3	
19.....	80	61	14	3	2	
20.....	96	70	15	4	3	1
21.....	88	62	13	9	2	
22.....	74	47	12	4	11	
23.....	87	58	20	5	4	
24.....	72	31	13	4	4	
25.....	49	28	11	6	2	2
26.....	32	19	9	2	2	
27.....	35	20	7	4	4	
28.....	30	21	6	1	1	1
29.....	19	12	6		1	
30 to 39.....	98	65	19	8	6	
40 to 49.....	20	10	8	1	1	
50 to 59.....	2	1			1	
Not known.....	55	20	22	1	3	9

It will be observed that the first infection (in some cases the only infection) was specified as gonorrhea in 638 instances, or two-thirds of the cases, and this was likely the first infection also for some of the 55 who had found themselves suffering from both diseases. The ages at which the infections were most commonly received were the nine years from 17 through 25, with a decided decrease in numbers both before and after these years. These nine years accounted for 627 of the cases. Ninety-six of the men, the largest number of any one year, received their first infection at 20 years of age. This year had the largest number for cases of gonorrhea also.

SOCIAL CHARACTERISTICS OF THE PATIENTS

Those who have been engaged in efforts to bring the venereal diseases under control in the United States have for years clearly recognized that social and psychological elements in the infected

individual are of as much importance in that endeavor as the element of sheer physical transmissibility. Education as to the nature of the diseases and the manner of their transmission and treatment, psychological elements in self-control which enables the infected person to avoid the deliberate exposure of another, the social milieu which develops social personalities, sensitive to social responsibilities of this kind—these are all elements in a broadly conceived plan to reduce and, perhaps, in time, eliminate these diseases or at least the more disastrous manifestations of them.

It has been a tenet in this creed³ that promiscuous sex relations, especially under the conditions found in commercialized vice districts, whether or not under police regulation, promote the spread of these diseases. Conversely, conditions which make for happy conjugal relationships and for vigorous normal healthy life are allies in their reduction. This point of view has received such widespread emphasis in the United States that it is sometimes referred to as a peculiarly American program.

It is therefore of importance to learn as much as may be of the social characteristics found within this highly cosmopolitan group of men who have contracted these diseases and received treatment at the hands of the United States Government.

Country of birth and citizenship status.—Table 9 gives both country of birth and the citizenship status of the men at the time they were interviewed. Citizens of the United States have been classified as native citizens and those who had become citizens by naturalization, and aliens as those who had filed first papers, those who had not filed first papers, and those who were illegally in the country. The latter group is composed of men who stated they had not paid the head tax required of aliens who enter the United States with the intention of becoming residents, and of others who had deserted their ships in United States ports.

³ Prostitution in Europe, by Abraham Flexner. Chapter XI.

TABLE 9.—Country of birth and citizenship status

Country of birth	Citizenship status							
	Total	Citizens			Aliens			
		Total	Native	Naturalized	Total	With first papers	Without first papers	Illegally in country
Total.....	961	605	527	78	356	133	1 208	15
North America.....	571	537	527	10	34	9	24	1
United States.....	527	455	455					
United States (outlying possessions).....		72	72					
Alaska.....		2	2					
Canal Zone.....		1	1					
Hawaii.....		5	5					
Philippine Islands.....		23	23					
Puerto Rico.....		36	36					
Virgin Islands.....		5	5					
Canada.....	15	5		5	10	3	6	1
Mexico.....	2				2	1	1	
Newfoundland.....	4	2		2	2	1	1	
West Indies.....	23	3		3	20	4	16	
Central America.....	9				9	2	7	
British Honduras.....	1				1		1	
Costa Rica.....	2				2	1	1	
Honduras.....	4				4	1	3	
Panama.....	2				2		2	
South America.....	38	5		5	33	8	25	
Argentina.....	3				3		3	
Brazil.....	9				9	1	8	
Chile.....	9	2		2	7	1	6	
Colombia.....	2				2	2		
Dutch Guiana.....	1				1		1	
Dutch West Indies.....	9	2		2	7	4	3	
Ecuador.....	1				1		1	
Nicaragua.....	1				1		1	
Peru.....	1				1		1	
Uruguay.....	1	1		1				
Venezuela.....	1				1		1	
Europe.....	330	63		63	267	113	140	14
Austria.....	3				3	3		
Belgium.....	2				2	2		
British Isles.....	61	13		15	46	20	25	1
England.....	32	2		2	30	13	17	
Ireland.....	19	8		8	11	4	6	1
Scotland.....	9	5		5	4	2	2	
Wales.....	1				1	1		
Czechoslovakia.....	1				1	1		
Denmark.....	21	7		7	14	4	8	2
Estonia.....	6	1		1	5	1	3	1
Finland.....	4	1		1	3	1	2	
France.....	5	2		2	3	1	2	
Germany.....	59	5		5	54	20	29	5
Greece.....	9	2		2	7	2	5	
Hungary.....	2				2		2	
Italy.....	5				5	4	1	
Latvia.....	4	2		2	2		1	1
Malta.....	3	1		1	2	2		
Netherlands.....	7	1		1	6		5	1
Norway.....	34	7		7	27	11	14	2
Poland.....	1	1		1				
Portugal.....	7	1		1	6	5	1	
Rumania.....	2				2	1	1	
Russia.....	14	6		6	8	6	1	1
Spain.....	44	4		4	40	14	26	
Sweden.....	28	5		5	23	9	14	
Switzerland.....	7	2		2	5	5		
Turkey.....	1				1	1		

¹ 102 detained at Ellis Island by Immigration Bureau were to be repatriated.

TABLE 9.—*Country of birth and citizenship status*—Continued

Country of birth	Total	Citizenship status					
		Citizens			Aliens		
		Total	Native	Naturalized	Total	With first papers	Without first papers
Asia.....	3				3		3
Arabia.....	1				1		1
China.....	2				2		2
Africa.....	9				9		
Algeria.....	2				2		2
British West Africa.....	1				1		1
Canary Islands.....	1				1		1
Senegal.....	4				4		4
Unspecified.....	1				1		1
Australia.....	1				1	1	

The 455 who were born in the United States constituted 47 per cent of the whole group. Europe, with 330, accounted for another 34 per cent; South America, with 38, for 4 per cent; and the remainder were widely scattered.

The 1920 census reported⁴ that there were 1,737,043 males of 21 years of age and over in New York City. Of these, 749,387, or 43 per cent, were native-born white; 927,742, or 53 per cent, were foreign-born white; and 53,614, or 3 per cent, were negroes. Other colored constituted only a fraction of 1 per cent. While the classifications are not precisely comparable, since a small percentage of the seamen studied were under 21, the general similarity is such that one can say that this group of seamen was not disproportionately large in foreign-born members.

Citizens of the United States numbered 605, nearly two-thirds of the 961. Of this number, 527 were native citizens, 72 were born in the outlying possessions, and 78 were naturalized citizens. In this last group Irishmen were the most numerous, with eight who had been naturalized. Denmark and Norway had seven each, and Russia had six in these groups.

More than one-third of the aliens had filed first papers, and of the remainder, as has previously been pointed out, 102 were detained at Ellis Island by Immigration Service officials because of venereal disease and were to be repatriated. At least 15 were illegally in the country, for they stated that they had deserted their ship at an American port or had entered without payment of the head tax.

According to the immigration quota law of 1924, no alien seaman or other alien, exclusive of those entering under the provisions of the

⁴ State Compendium, New York, p. 62.

immigration act, may land in the United States for permanent residence. Those coming in under the act must have visas issued by the United States consular officers abroad and be included in the quota allocated to their countries. The provisions of the act of 1924, which set the quotas according to national origins, had been postponed until July 1, 1929. On that date the old quotas, which had been arbitrarily based on the census of 1890, were discarded and the new system put into force by proclamation of the President. But visas are not required of bona fide alien seamen serving as such on vessels arriving at United States ports and seeking to enter the United States temporarily and solely in pursuit of their calling as seamen.

In one particular, seamen have easier requirements for naturalization than others seeking citizenship, since alien seamen who have been lawfully landed and who have served three years on board a merchant vessel of the United States are protected as United States citizens after declaring their intention to be naturalized. If not eligible under this provision, seamen may, of course, become naturalized in the usual fashion.

The first papers for some of these men had become outlawed, since more than seven years had elapsed from the date of filing. Others may have taken them out only because some ships required that seamen have first papers before being signed on.

Judging from past experience in the naturalization of seamen, it is altogether likely that some of the 133 who had filed first papers may have done so without having previously paid the head tax required. There is now a stricter enforcement of the law in this regard and therefore less likelihood of the applicant for citizenship learning, on application for final papers, that he is not eligible because of nonpayment of head tax and being required to return to his native land and enter the United States under its quota.

Foreign-born seamen who entered the United States prior to June 3, 1921, when the first quota law became effective, and have encountered difficulties in securing citizenship papers due to question as to their legal entry into the country, may now secure such papers, if they are otherwise acceptable, by applying for them in the usual manner after being registered by the Immigration Service. (Act of March 2, 1929.) The law now authorizes the making of a record on behalf of an alien for whom no record of admission to the United States for permanent residence exists or can be found, provided that such alien can prove that he or she entered the country before June 3, 1921, and has since resided continuously in the United States.

Comparison with country of birth of all discharged patients.—The question as to whether or not this sample, with regard to national backgrounds, is characteristic of the general run of patients who receive hospital treatment for the same diseases may be answered

by a comparison of Tables 9 and 10. Data on nativity were available for all the discharged hospital patients who were under treatment during the fiscal year 1928 at Ellis Island and Stapleton Hospitals. This information is presented in Table 10. Country of birth for the 961 seamen studied is given in Table 9.

TABLE 10.—*Nativity of all discharged hospital patients treated for venereal disease at Ellis Island⁵ and Stapleton marine hospitals during the fiscal year 1928⁶*

Total.....	1, 186
North America.....	810
United States.....	647
United States—Outlying possessions.....	102
Canada.....	20
Mexico.....	4
West Indies.....	37
Central America ⁷	5
South America ⁷	29
Europe.....	315
Austria.....	8
British Isles.....	60
England.....	31
Ireland.....	22
Scotland.....	7
Denmark.....	25
Finland.....	5
France.....	1
Germany.....	40
Greece.....	17
Hungary.....	1
Italy.....	9
Netherlands.....	5
Norway.....	38
Poland.....	2
Rumania.....	3
Russia.....	17
Spain.....	53
Sweden.....	26
Switzerland.....	5
Asia.....	1
China.....	1
Africa.....	4
South Africa.....	4
All others.....	22

⁵ Data not available for alien seamen detained for deportation.

⁶ July 1, 1927-June 30, 1928.

⁷ Country not indicated.

Of the 1,186 discharged hospital patients who had been under treatment for venereal disease at Ellis Island or Stapleton, 647, or 55 per cent, were born in the United States, a somewhat higher figure

than the 47 per cent in the sample. Those born in Europe constituted 27 per cent of the discharged patients, as contrasted with 34 per cent for the sample, and the remaining 10 per cent of those born in other countries, exclusive of the outlying possessions of the United States, were widely scattered, as was the corresponding 11 per cent group of the sample.

Among the European countries, Spain furnished the largest group for the discharged patients, with Germany, Norway, England, Sweden, and Denmark following in the order named. For the sample, the order was the same except that Germany was first and Spain second.

While these data indicate the wide range of social backgrounds which will be found by any one seeking to understand these seamen, the figures furnish no enlightenment on the relative proportions of venereally diseased patients among sailors of the various nationalities. No one knows the size of the nationality groups of seamen from which these men were drawn. Moreover, there is no way of measuring possible differences in the attitude and practices of the men of the various groups in seeking treatment at all institutions of the kinds here studied. It is possible that persons born in maritime nations, like Great Britain, Germany, and the Scandinavian countries, are both more likely to become seamen, perhaps on American ships, and also more likely to understand the necessity for treatment when they become infected than are men of other nationalities. They would, therefore, in a group such as this, be thrown into a prominence which does not represent a true picture of the prevalence of venereal disease among these nationalities.

It must also be remembered that the alien seaman comes under the scrutiny of the immigration authorities on each entry into port and that symptoms of the disease discovered in such examination would lead to his being hospitalized at Ellis Island before deportation. The American seaman is not required to undergo such scrutiny and is more free to follow his own judgment in treatment.

Race.—Table 11 groups the men according to race.

TABLE 11.—*Race*

Race		Number
Total		961
White		784
Negro		147
Other		30

Most of those represented in the miscellaneous group of 30 were from the Philippine Islands. The others were Hawaiians, Chinese, and American Indians. Here is brought out the fact that in this

group of seamen there was a fairly high percentage, as compared with New York City as a whole, of colored persons. As has been said, among all males of 21 years and over the negroes furnished three per cent in 1920. In this sample, they are 15 per cent. But here again we are handicapped in drawing any inferences regarding prevalence among these groups. About all that can be said is that those who deal with venereal disease among seamen must be equipped to take care of a good many cases of colored as well as white men. Moreover they will also find an appreciable number from the Philippine and Hawaiian Islands.

Age.—The following table gives age distribution for the men. The ages from 20 to 40 accounted for 817, or 85 per cent, and the 5-year group from 20 to 24 years was the largest.

TABLE 12.—*Age distribution*

Age groups	Number	Per cent
Total.....	961	100.0
Under 20.....	56	5.8
20 to 24.....	337	85.0
25 to 29.....	271	
30 to 39.....	209	
40 to 49.....	64	
50 to 59.....	18	
60 to 69.....	6	9.2

The oldest man was 69 and the next oldest, 62. The former had a pension from his previous occupation and had bought and was operating a tugboat. His small earnings and the pension provided him with a living.

A boy of 16, the youngest in the group, was an American lad, described as refined and well dressed. He said he was the only child in the family and ran away to sea to avoid working in his father's business. Of those under 20 years, eight were 17 years old. With the exception of two aliens who were to be repatriated, these were American-born, one colored and five white. One of the five white seamen had been sailing with his father since he was 8 years of age.

Action by the International Labor Organization with reference to the employment of young persons at sea is of interest here. The Genoa International Labor Conference in 1920 adopted a draft convention providing that children under the age of 14 years should not be employed or work on vessels other than those on which only members of the same family are employed. According to the articles of the peace treaty which set up the International Labor Organization, composed of members of the League of Nations, the members undertake to submit recommendations and draft conventions of the International Labor Conferences within a year to their competent legislative authority or authorities. By January, 1929, this convention had been ratified by 21 member nations.

In 1921, at the conference held in Geneva, further draft conventions along this line were adopted. These provided that the employment of any child or young person under 18 years of age on any vessel other than vessels on which only members of the same family were employed, should be conditional on the production of a medical certificate to be renewed annually and that young persons under 18 years of age should not be employed as trimmers or stokers. Twenty nations, by January, 1929, had ratified both of these conventions.

Marital status.—Although a large proportion of these men were between 25 and 60 years of age, few were married. Of the 961 men, 840, or 87 per cent, were single. Of the remainder, there were 67 who were married and living with their wives; 30 were divorced or separated; one stated he was a deserter from his family; and 23 were widowers. While one-fourth of the negroes were married, the proportion, both for the white and other races, was about one-tenth.

TABLE 13.—*Marital status by race*

Race	Marital status						
	Total	Single	Married				
			Total	Married	Divorced or separated	Deserter	Widower
Total	961	840	121	67	30	1	23
White	784	702	82	43	20	1	19
Negro	147	111	36	22	10		4
Other	30	27	3	2			1

The large proportion of single men is perhaps not surprising in view of the very nature of the seamen's calling, involving, as it does, a constant change of abode, and of the other conditions adverse to family life under which men work who follow the sea.

Number of children.—Questions were included on the schedules as to the number of children of the men, grouped as over and under 16 years. Table 14 shows the number of men with specified numbers of children.

TABLE 14.—*Number of children*

Number of children	Number of men with specified numbers of children			
	Total	Under 16	16 and over	Both under and over 16
Total	53	39	10	4
1 child	22	16	6	
2 children	2	17	2	3
3 children	3	2	1	
4 children	4	2	1	1
6 children	1	1		
Not specified	1	1		

Only 53 of the 121 married men reported any children, and in these 53 families there were in the neighborhood of 100 children, or an average to a family of less than two. Only one man, a negro from the Barbados, reported six children.

Religion.—Information as to religion was secured from the social service records in the case of the out-patient department at Hudson Street Hospital and otherwise from the man himself at the time of the interview.

Over 45 per cent of the men stated that they were Protestants and 40 per cent that they were Roman Catholics. The 23 men of the miscellaneous groups included those who were adherents of the Greek Church, Mohammedans, and two Chinese who were checked as of other than the Christian religion.

TABLE 15.—*Religion*

Religion	Number
Total.....	961
Protestant.....	440
Roman Catholic.....	386
None.....	46
Jewish.....	18
Other.....	23
Not reported.....	48

(Chapters IV and V, dealing with provisions for treatment and with the social factors in the problem, will be published in the following issue of PUBLIC HEALTH REPORTS.)

COURT DECISION RELATING TO PUBLIC HEALTH

Labeling of mattresses to indicate whether filling was new or second-hand.—(Massachusetts Supreme Judicial Court; *Commonwealth v. National Mattress Co. Inc.*, 170 N. E. 63; decided Jan. 31, 1930.) The defendant company manufactured and sold mattresses which were labeled "manufactured of new material." These mattresses were filled with material containing "garnetted clippings." Such clippings were made as follows: Manufacturers of clothing cut from bolts or rolls of cotton or woolen cloth the patterns out of which articles of clothing were to be made, leaving small parts of the original cloth, commonly known as "clips." These clips were gathered together and placed in a machine which shredded the material, such shredded material being called "garnetted clippings."

The statutes required that an article of bedding, manufactured for purposes of sale, should be labeled as containing "secondhand" filling, if the material had been previously used, and, if none of the filling material had been previously used, it should be labeled as being "manufactured of new material." "New" referred to any material which had not been used as a part or portion of another manufactured

article or used for any other purpose, and "previously used," "previously been used," or "been used before" referred to material which had been used as a part or portion of another manufactured article or used for any other purpose.

The defendant corporation was charged with violating the above-mentioned statutory provisions, it being contended that mattresses filled with garnetted clippings were required to be labeled as containing "secondhand" filling instead of being labeled "manufactured of new material." The action of the trial court in finding the defendant guilty was upheld by the supreme court, which latter court said, in part:

The apparent purpose of the part of the statute upon which the complaint is based was to regulate the manufacture and sale of the articles coming within its scope so that a purchaser might be informed when buying such article whether it had been filled with new material or used material. The "clips" had been a portion of a bolt or roll of cloth and this cloth had been put to the use for which it was made by being cut into patterns for articles of clothing. The "clips" had so far been changed by this process that they could no longer be employed for the purpose for which the cloth was manufactured. After their usefulness for clothing had ceased their character as cloth was changed by being put through the mill and shredded so that they might be used for a purpose to which they were not adaptable as cloth. In our opinion the judge was justified in reaching the conclusion that the material constituting the filling of the mattress had been previously used for another purpose within the meaning of the statute and in finding the defendant guilty.

DEATHS DURING WEEK ENDED MARCH 29, 1930

Summary of information received by telegraph from industrial insurance companies for the week ended March 29, 1930, and corresponding week of 1929. (From the Weekly Health Index, April 2, 1930, issued by the Bureau of the Census, Department of Commerce)

	Week ended Mar. 29, 1930	Corresponding week, 1929
Policies in force.....	75, 656, 614	73, 734, 291
Number of death claims.....	15, 087	13, 268
Death claims per 1,000 policies in force, annual rate.....	10. 4	9. 4

Deaths from all causes in certain large cities of the United States during the week ended March 29, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index, April 2, 1930, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Mar 29, 1930		Annual death rate per 1,000, corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Mar. 29, 1930 ²
	Total deaths	Death rate ¹		Week ended Mar. 29, 1930	Corresponding week, 1929	
Total (64 cities).....	7,817	13.8	13.3	810	755	³ 71
Akron.....	37			5	7	46
Albany ⁴	36	15.6	16.5	5	7	109
Atlanta.....	83	17.0	12.9	8	7	85
White.....	37			4	8	127
Colored.....	46	(⁵)	(⁵)	4	4	63
Baltimore ⁴	234	14.7	13.1	13	23	44
White.....	175			10	15	43
Colored.....	59	(⁵)	(⁵)	3	8	49
Birmingham.....	84	19.7	18.1	5	11	47
White.....	34			0	6	0
Colored.....	50	(⁵)	(⁵)	5	5	118
Boston.....	248	16.2	14.5	30	28	85
Bridgeport.....	49			6	7	103
Buffalo.....	158	14.8	13.7	12	14	53
Cambridge.....	35	14.5	13.3	1	2	19
Camden.....	44	16.9	11.6	9	7	163
Canton.....	21	9.4	12.5	5	3	124
Chicago ⁴	664	11.0	12.5	73	72	65
Cincinnati.....	157			9	16	53
Cleveland.....	228	11.8	11.0	23	20	69
Columbus.....	84	14.6	13.3	7	7	68
Dallas.....	60	15.8	13.2	9	6	
White.....	51			7	6	
Colored.....	15	(⁵)	(⁵)	2	0	
Dayton.....	45	12.7	11.1	5	6	74
Denver.....	77	13.6	14.7	11	8	115
Des Moines.....	31	10.6	14.1	1	5	17
Detroit.....	293	11.1	14.3	42	42	65
Duluth.....	14	6.2	8.5	2	0	54
El Paso.....	31	13.7	18.0	7	11	
Erie.....	20			3	4	64
Full River ⁴	36	14.0	8.9	7	3	160
Flint.....	34	11.9	10.2	10	8	117
Fort Worth.....	33	10.1	11.3	0	4	
White.....	24			0	4	
Colored.....	9	(⁵)	(⁵)	0	0	
Grand Rapids.....	47	14.9	9.8	4	3	61
Houston.....	64			3	5	
White.....	41			3	5	
Colored.....	23	(⁵)	(⁵)	1	2	
Indianapolis.....	125	17.1	15.6	4	8	30
White.....	99			2	7	17
Colored.....	26	(⁵)	(⁵)	2	1	106
Jersey City.....	83	13.3	14.1	7	13	61
Kansas City, Kans.....	31	13.7	13.2	4	3	95
White.....	25			3	3	80
Colored.....	6	(⁵)	(⁵)	1	0	217
Kansas City, Mo.....	108	11.4	17.2	14	14	100
Knoxville.....	59	29.2	17.3	7	2	164
White.....	48			6	1	150
Colored.....	11	(⁵)	(⁵)	1	1	247
Los Angeles.....	325			15	21	40
Louisville.....	93	14.7	15.7	7	6	61
White.....	64			6	5	59
Colored.....	29	(⁵)	(⁵)	1	1	72
Lowell.....	23			2	2	47
Lynn.....	19	9.4	10.4	5	3	126
Memphis.....	88	24.1	24.7	11	15	131
White.....	34			5	6	92
Colored.....	54	(⁵)	(⁵)	6	9	202
Milwaukee.....	115	11.0	12.2	17	18	86

¹ Annual rate per 1,000 population

² Deaths under 1 year per 1,000 births Cities left blank are not in the registration area for births.

³ Data for 72 cities

⁴ Deaths for week ended Friday.

⁵ In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31, Baltimore, 15, Birmingham, 39, Dallas, 15, Fort Worth, 14, Houston, 25, Indianapolis, 11, Kansas City, Kans., 14, Knoxville, 15, Louisville, 17, Memphis, 38, Nashville, 30, New Orleans, 26, Richmond, 32, and Washington, D. C., 25.

Deaths from all causes in certain large cities of the United States during the week ended March 29, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index, April 2, 1930, issued by the Bureau of the Census, Department of Commerce)—Continued.

City	Week ended Mar. 29, 1930		Annual death rate per 1,000, corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Mar. 29, 1930
	Total deaths	Death rate		Week ended Mar. 29, 1930	Corresponding week, 1929	
Minneapolis.....	90	10.3	9.7	4	5	26
Nashville.....	67	25.0	17.6	8	5	124
White.....	35			7	4	144
Colored.....	32	(^a)	(^a)	1	1	63
New Bedford.....	23			4	1	103
New Haven.....	46	12.8	9.4	4	7	78
New Orleans.....	153	18.6	15.9	10	9	5
White.....	89			6	5	53
Colored.....	64	(^a)	(^a)	4	4	67
New York.....	1,703	14.8	13.6	194	156	82
Bronx Borough.....	228	12.5	11.0	28	18	66
Brooklyn Borough.....	586	13.2	12.1	71	49	76
Manhattan Borough.....	681	20.3	19.2	78	72	128
Queens Borough.....	169	10.3	9.2	14	15	41
Richmond Borough.....	39	13.5	13.8	3	2	56
Newark, N. J.....	103	11.3	12.0	16	14	84
Oakland.....	66	12.6	12.0	4	3	48
Oklahoma City.....	40			6	1	118
Omaha.....	57	13.3	11.7	5	8	57
Paterson.....	35	12.6	15.8	1	5	17
Philadelphia.....	544	13.7	11.2	57	41	84
Pittsburgh.....	212	16.4	13.5	25	24	92
Portland, Oreg.....	76			0	4	0
Providence.....	73	13.3	14.2	9	9	83
Richmond.....	50	13.4	14.5	4	6	59
White.....	30			2	2	45
Colored.....	20	(^a)	(^a)	2	4	87
Rochester.....	89	14.1	15.6	8	12	71
St. Louis.....	218	13.4	14.0	8	9	26
St. Paul.....	60			4	5	41
Salt Lake City.....	42	15.9	15.5	5	1	79
San Antonio.....	82	19.6	14.8	11	10	
San Diego.....	47			3	5	63
San Francisco.....	146	13.0	15.9	5	7	34
Schenectady.....	21	11.7	11.2	4	2	125
Seattle.....	74	10.1	9.9	3	4	30
Somerville.....	32	16.2	10.7	5	4	163
Spokane.....	37	17.7	10.5	2	0	52
Springfield, Mass.....	37	12.9	12.9	6	2	95
Syracuse.....	40	10.5	20.4	8	10	99
Tacoma.....	27	12.7	9.4	1	1	25
Toledo.....	77	12.8	12.8	8	8	73
Trenton.....	41	15.4	16.9	4	3	74
Utica.....	46	23.0	16.5	5	2	142
Washington, D. C.....	153	14.5	12.7	13	12	75
White.....	92			7	8	60
Colored.....	61	(^a)	(^a)	6	4	103
Waterbury.....	10			1	0	26
Wilmington, Del.....	29	11.8	11.4	4	2	90
Worcester.....	57	15.0	10.6	3	0	39
Yonkers.....	23	9.9	9.9	1	0	24

^a Deaths for week ended Friday.

In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended March 29, 1930, and March 30, 1929

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended March 29, 1930, and March 30, 1929

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Mar. 29, 1930	Week ended Mar. 30, 1929	Week ended Mar. 29, 1930	Week ended Mar. 30, 1929	Week ended Mar. 29, 1930	Week ended Mar. 30, 1929	Week ended Mar. 29, 1930	Week ended Mar. 30, 1929
New England States:								
Maine.....	5	4	18	5	77	204	0	0
New Hampshire.....	1	2	11	9	4	26	0	0
Vermont.....	2				60		0	0
Massachusetts.....	67	72	20	40	1,006	331	5	3
Rhode Island.....	7	7		1	7	52	0	0
Connecticut.....	14	15	12	23	13	449	1	3
Middle Atlantic States								
New York.....	125	320	62	83	1,012	1,195	24	17
New Jersey.....	112	93	21	9	747	273	4	4
Pennsylvania.....	105	123			1,272	1,712	7	0
East North Central States								
Ohio.....	77	67	38	73	709	2,606	11	8
Indiana.....	22	26			95	568		0
Illinois.....	158	145	176	322	727	1,732	22	15
Michigan.....	81	124	2	9	1,221	657	38	88
Wisconsin.....	14	14	40	22	787	863	7	12
West North Central States								
Minnesota.....	19	14	4		230	426	3	0
Iowa.....	13	9			603	84	4	2
Missouri.....	33	73	9	7	66	522	19	25
North Dakota.....	2	4			22	39	5	2
South Dakota.....	5	6	1		102	35	1	0
Nebraska.....	14	10		5	411	68	2	0
Kansas.....	13	10	14	28	731	313	8	1
South Atlantic States								
Delaware.....	2	1			8	34	0	0
Maryland.....	18	15	55	22	48	78	1	0
District of Columbia.....	15	13	2		10	18	0	0
West Virginia.....	5	14	28	40	79	340	0	1
North Carolina.....	31	13	14		20	79	2	0
South Carolina.....	22	16	832	671	30	8	0	0
Georgia.....	5	8	137	82	196	41	7	4
Florida.....	3	11	2	5	424	85	0	0
East South Central States								
Kentucky.....							1	2
Tennessee.....	15	13	71	91	180	12	25	2
Alabama.....	22	11	76	76	265	121	4	1
Mississippi.....	13	6					21	1
West South Central States								
Arkansas.....	15	2	105	31	25	95	9	2
Louisiana.....	23	16	9	40	154	112	6	4
Oklahoma ¹	15	15	65	93	101	62	1	6
Texas.....	31	21	129	78	134	119	1	2
Mountain States:								
Montana.....	1	7				70	2	1
Idaho.....	2			2	75	1	1	11
Wyoming.....	1	3	1		5	34	0	2
Colorado.....	9	8	2	7	487	24	2	10
New Mexico.....	17	4		16	144	2	4	1
Arizona.....	7	2	11		53	1	5	10
Utah ²		3	2	4	276		10	15
Pacific States:								
Washington.....	8	7		3	282	94	7	21
Oregon.....	17	8	44	71	130	180	0	2
California.....	51	33	38	84	2,173	61	6	47

¹ New York City only.

² Figures for 1930 are exclusive of Oklahoma City and Tulsa.

³ Week ended Friday.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended March 29, 1930, and March 30, 1929—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Mar 29, 1930	Week ended Mar 30, 1929	Week ended Mar 29, 1930	Week ended Mar 30, 1929	Week ended Mar 29, 1930	Week ended Mar 30, 1929	Week ended Mar 29, 1930	Week ended Mar 30, 1929
New England States								
Maine	0	1	32	37	0	9	6	3
New Hampshire	1	0	16	14	0	1	2	0
Vermont	0	0	7	5	4	4	0	0
Massachusetts	0	0	274	307	0	0	2	5
Rhode Island	0	0	23	31	0	0	0	1
Connecticut	0	0	115	67	0	4	2	0
Middle Atlantic States								
New York	2	0	607	626	3	0	34	17
New Jersey	0	0	270	150	0	0	2	3
Pennsylvania	0	0	432	410	1	6	14	8
East North Central States								
Ohio	0	1	594	427	146	47	9	12
Indiana	0	0	176	301	162	88	3	26
Illinois	0	2	516	482	122	94	8	6
Michigan	1	1	292	573	123	66	0	10
Wisconsin	0	1	118	187	38	12	1	3
West North Central States								
Minnesota	0	0	146	110	4	1	3	3
Iowa	0	0	95	165	0	30	1	0
Missouri	0	0	105	133	51	14	4	5
North Dakota	0	0	21	28	18	3	3	2
South Dakota	0	1	8	21	70	13	0	0
Nebraska	0	0	56	112	39	85	0	0
Kansas	0	0	135	152	88	49	2	4
South Atlantic States								
Delaware	0	0	11	3	0	0	1	0
Maryland ²	0	0	116	53	0	0	3	2
District of Columbia	0	0	13	28	0	0	0	1
West Virginia	0	0	24	40	22	13	17	2
North Carolina	3	0	37	40	40	16	2	1
South Carolina	0	1	12	18	1	0	3	9
Georgia	0	0	25	6	0	0	1	9
Florida	0	1	11	9	1	0	2	3
East South Central States								
Kentucky	0	0	75	88	19	38	3	0
Tennessee	1	1	78	57	9	2	6	2
Alabama	0	1	21	9	11	5	6	8
Mississippi	0	0	10	9	6	1	2	9
West South Central States								
Arkansas	0	0	22	6	10	1	1	1
Louisiana	0	0	25	54	2	6	8	6
Oklahoma ²	0	0	29	59	101	102	4	7
Texas	3	1	63	72	89	104	2	0
Mountain States								
Montana	0	0	39	20	17	6	3	8
Idaho	0	0	5	3	12	18	1	0
Wyoming	0	0	5	9	2	1	0	0
Colorado	0	0	29	41	6	28	2	1
New Mexico	0	0	10	11	21	2	0	1
Arizona	0	0	16	8	28	2	4	2
Utah ²	0	0	18	5	0	4	0	0
Pacific States								
Washington	0	0	40	30	83	50	2	2
Oregon	0	1	37	34	23	19	0	3
California	2	0	180	334	120	56	1	5

² Week ended Friday.³ Figures for 1930 are exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Menin- gococ- cus menin- gitis	Diph- theria	Influ- enza	Ma- laria	Meas- les	Pella- gra	Polio- mye- litis	Scarlet fever	Small- pox	Ty- phoid fever
<i>February, 1930</i>										
California.....	44	276	220	2	4,798	2	3	1,221	467	32
Iowa.....	17	41	23				0	441	300	3
Mississippi.....	91	80	5,904	1,934	385	418	1	79	28	31
Montana.....	7	3	26		129		0	172	43	9
Nevada.....	5	4	40		66			24	5	
Oregon.....	3	32	374		79		0	185	65	10
South Dakota.....	7	12	26		608		1	226	295	3
Virginia.....	19	174	2,840	27	1,572	33	3	268	27	9
Washington.....	26	43	47		788		0	281	314	33
Wisconsin.....	23	84	210		4,273		3	727	158	7

<i>February, 1930</i>		Cases	Mumps—Continued.	Cases
Botulism			South Dakota.....	32
California.....		1	Washington.....	453
Chicken pox:			Wisconsin.....	823
California.....		2,355	Ophthalmia neonatorum	
Mississippi.....		1,131	Mississippi.....	13
Montana.....		44	Wisconsin.....	1
Nevada.....		42	Paratyphoid fever:	
Oregon.....		190	California.....	2
South Dakota.....		75	Puerperal septicemia:	
Virginia.....		753	Mississippi.....	52
Washington.....		540	Washington.....	4
Wisconsin.....		1,329	Rabies in animals	
Dengue			California.....	57
Mississippi.....		5	Mississippi.....	6
Dysentery			Oregon.....	1
California (amebic).....		4	Scabies	
California (bacillary).....		6	Oregon.....	2
Mississippi (amebic).....		52	Washington.....	1
Mississippi (bacillary).....		416	Septic sore throat:	
Dysentery and diarrhea:			Oregon.....	13
Virginia.....		139	Washington.....	1
Food poisoning:			Tetanus	
California.....		100	California.....	7
German measles.			Trachoma:	
California.....		189	California.....	9
Washington.....		50	Mississippi.....	7
Wisconsin.....		9	South Dakota.....	2
Granuloma, coccidioides:			Wisconsin.....	1
California.....		2	Trichinosis:	
Hookworm disease:			California.....	19
California.....		1	Undulant fever:	
Mississippi.....		254	California.....	8
Impetigo contagiosa			Iowa.....	14
Oregon.....		13	Oregon.....	2
Jaundice:			Washington.....	3
California.....		2	Wisconsin.....	3
Leprosy			Vincent's angina:	
California.....		1	Oregon.....	8
Lethargic encephalitis			Washington.....	11
California.....		3	Whooping cough:	
Oregon.....		1	California.....	623
Washington.....		2	Mississippi.....	1,202
Wisconsin.....		1	Montana.....	21
Mumps:			Nevada.....	1
California.....		3,076	Oregon.....	153
Mississippi.....		608	South Dakota.....	39
Montana.....		525	Virginia.....	1,079
Nevada.....		9	Washington.....	220
Oregon.....		175	Wisconsin.....	963

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 98 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 32,165,000. The estimated population of the 91 cities reporting deaths is more than 30,570,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended March 22, 1930, and March 23, 1929

		1930	1929	Estimated expectancy
<i>Cases reported</i>				
Diphtheria:				
46 States.....		1, 250	1, 494	
98 cities.....		614	810	913
Measles:				
45 States.....		14, 751	13, 154	
98 cities.....		4, 893	4, 599	
Meningococcus meningitis:				
46 States.....		295	323	
98 cities.....		121	149	
Poliomyelitis:				
47 States.....		14	26	
Scarlet fever:				
46 States.....		5, 105	5, 685	
98 cities.....		1, 994	2, 095	1, 586
Smallpox:				
46 States.....		1, 429	1, 127	
98 cities.....		153	66	87
Typhoid fever:				
46 States.....		203	199	
98 cities.....		52	42	34
<i>Deaths reported</i>				
Influenza and pneumonia				
91 cities.....		1, 063	1, 129	
Smallpox				
91 cities.....		0	0	

City reports for week ended March 22, 1930

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during non-epidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1921 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND								
Maine								
Portland	11	1	0	1	0	0	25	7
New Hampshire:								
Concord	0	0	0		0	2	0	2
Vermont:								
Barre	12	0	0		0	0	0	0
Burlington	0	0	0		0	0	0	0
Massachusetts:								
Boston	46	37	15	3	0	331	73	36
Fall River	7	3	5		0	1	2	3
Springfield	4	4	2		0	3	7	2
Worcester	9	4	0		0	87	0	1
Rhode Island:								
Pawtucket	8	1	3		0	0	0	3
Providence	7	8	1		0	0	0	11
Connecticut:								
Bridgeport	0	6	0		1	0	0	5
Hartford	4	6	1	1	0	2	1	10

City reports for week ended March 22, 1930—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
MIDDLE ATLANTIC								
New York:								
Buffalo.....	26	13	9	-----	1	5	15	24
New York.....	257	242	93	40	14	507	229	207
Rochester.....	23	9	1	-----	2	26	2	5
Syracuse.....	20	6	0	-----	0	4	80	4
New Jersey:								
Camden.....	2	6	7	-----	2	0	0	4
Newark.....	54	16	44	3	0	278	22	16
Trenton.....	8	3	4	-----	0	21	0	1
Pennsylvania:								
Philadelphia.....	68	69	20	2	9	109	81	63
Pittsburgh.....	30	18	27	1	2	238	13	24
Reading.....	17	3	0	-----	0	1	0	3
Scranton.....	6	3	1	-----	0	0	0	0
EAST NORTH CENTRAL								
Ohio:								
Cincinnati.....	17	9	1	-----	0	30	0	9
Cleveland.....	144	20	17	15	3	8	35	20
Columbus.....	22	3	5	-----	0	58	10	12
Toledo.....	29	5	5	1	1	158	19	7
Indiana:								
Fort Wayne.....	0	2	1	-----	0	0	0	3
Indianapolis.....	19	5	0	-----	0	5	5	17
South Bend.....	0	1	3	-----	0	1	0	5
Terre Haute.....	5	0	0	-----	0	0	0	1
Illinois:								
Chicago.....	102	99	133	5	9	35	90	91
Springfield.....	18	1	0	1	1	2	0	1
Michigan:								
Detroit.....	88	48	45	2	1	700	60	44
Flint.....	27	3	5	-----	0	8	6	11
Grand Rapids.....	1	2	0	-----	1	1	1	7
Wisconsin:								
Kenosha.....	10	1	0	-----	0	2	0	2
Madison.....	2	1	1	-----	-----	76	0	-----
Milwaukee.....	183	16	3	-----	0	8	66	16
Racine.....	1	2	0	-----	0	2	1	0
Superior.....	2	0	0	-----	0	7	0	0
WEST NORTH CENTRAL								
Minnesota:								
Duluth.....	2	0	0	-----	0	102	0	3
Minneapolis.....	43	14	4	-----	3	24	48	10
St. Paul.....	45	10	0	-----	0	5	13	5
Iowa:								
Davenport.....	0	1	0	-----	-----	31	2	-----
Des Moines.....	0	1	0	-----	-----	20	2	-----
Sioux City.....	4	1	0	-----	-----	105	15	-----
Waterloo.....	14	0	1	-----	-----	55	0	-----
Missouri:								
Kansas City.....	32	5	6	1	1	9	1	3
St. Joseph.....	2	0	0	-----	0	0	0	2
St. Louis.....	32	41	21	1	-----	18	17	-----
North Dakota:								
Fargo.....	9	0	0	-----	0	0	12	0
Grand Forks.....	0	0	0	-----	-----	1	0	-----
South Dakota:								
Aberdeen.....	23	0	1	-----	-----	0	2	-----
Sioux Falls.....	0	0	0	-----	-----	11	0	-----
Nebraska:								
Omaha.....	8	3	4	-----	0	84	1	10
Kansas:								
Topeka.....	7	1	0	1	0	100	10	2
Wichita.....	18	2	2	-----	0	11	1	6

City reports for week ended March 22, 1930—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
SOUTH ATLANTIC								
Delaware:								
Wilmington.....	0	2	2	-----	0	3	0	7
Maryland:								
Baltimore.....	159	25	13	15	3	3	15	47
Cumberland.....	0	0	0	-----	0	0	0	0
Frederick.....	0	0	0	-----	0	1	0	0
District of Columbia:								
Washington.....	22	12	16	-----	0	1	0	17
Virginia								
Lynchburg.....	19	1	4	-----	0	112	11	2
Norfolk.....	0	1	2	-----	0	1	22	7
Richmond.....	4	3	4	-----	3	3	4	5
Roanoke.....	2	1	2	-----	0	87	0	1
West Virginia								
Charleston.....	13	1	0	-----	0	12	1	1
Wheeling.....	10	0	0	-----	0	0	0	2
North Carolina								
Raleigh.....	16	0	1	-----	0	0	0	3
Wilmington.....	13	0	0	-----	0	0	0	2
Winston-Salem.....	16	0	1	2	0	0	11	4
South Carolina								
Charleston.....	3	0	0	21	1	0	2	1
Columbia.....	19	0	0	-----	0	0	4	3
Georgia:								
Atlanta.....	15	2	1	15	3	27	17	9
Brunswick.....	0	0	0	-----	0	0	5	0
Savannah.....	3	0	1	11	4	1	0	3
Florida								
Miami.....	7	3	5	1	0	1	1	1
St. Petersburg.....								
Tampa.....	9	1	0	-----	0	58	12	4
EAST SOUTH CENTRAL								
Kentucky								
Covington.....	4	1	0	-----	0	2	0	3
Tennessee								
Memphis.....	9	4	4	-----	3	3	19	16
Nashville.....	0	1	1	-----	1	4	0	3
Alabama								
Birmingham.....	8	2	1	7	4	3	2	3
Mobile.....	2	1	0	-----	4	0	1	4
Montgomery.....	5	0	0	2	-----	198	0	-----
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith.....	0	0	0	-----	-----	5	1	-----
Little Rock.....	18	0	1	-----	0	10	0	3
Louisiana:								
New Orleans.....	3	11	15	5	3	35	0	19
Shreveport.....	12	1	0	-----	0	0	15	7
Oklahoma:								
Oklahoma City.....	6	2	0	-----	0	32	8	14
Tulsa.....	15	1	1	-----	-----	263	1	-----
Texas								
Dallas.....	7	4	8	1	2	107	2	8
Fort Worth.....	12	3	3	1	0	8	0	0
Galveston.....	0	0	0	-----	0	0	0	0
Houston.....	4	4	11	-----	1	0	1	9
San Antonio.....	7	3	4	-----	1	0	0	7
MOUNTAIN								
Montana:								
Billings.....	0	0	0	-----	0	0	12	1
Great Falls.....	2	0	0	-----	0	0	29	2
Helena.....	0	0	0	-----	0	0	8	1
Missoula.....	0	0	0	-----	0	3	0	4
Idaho:								
Boise.....	0	0	0	-----	0	0	0	0

City reports for week ended March 22, 1930—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
MOUNTAIN—contd.								
Colorado								
Denver.....	58	8	7	-----	4	190	27	7
Pueblo.....	16	1	0	-----	1	3	60	2
New Mexico								
Albuquerque.....	7	0	0	-----	0	17	19	0
Arizona								
Phoenix.....	2	1	0	-----	0	7	3	1
Utah								
Salt Lake City.....	5	2	3	-----	2	122	9	5
Nevada								
Reno.....	0	0	0	-----	0	1	1	0
PACIFIC								
Washington								
Seattle.....	58	4	0	-----		167	89	-----
Spokane.....	24	2	0	-----		2	0	-----
Tacoma.....	3	1	3	-----	1	24	0	1
Oregon								
Portland.....	24	9	6	-----	0	8	18	5
Salem.....	10	0	0	-----	0	0	15	0
California								
Los Angeles.....	141	41	14	24	2	346	53	16
Sacramento.....	12	2	0	-----	0	3	48	5
San Francisco.....	53	18	5	1	0	307	90	9

Division, State, and city	Scarlet fever		Smallpox			Tuber- culosis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all cause
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
NEW ENGLAND											
Maine											
Portland.....	4	2	0	0	0	2	0	0	0	1	27
New Hampshire											
Concord.....	1	3	0	0	0	0	0	0	0	0	10
Vermont											
Barre.....	1	0	0	0	0	0	0	0	0	0	1
Burlington.....	2	0	0	0	0	0	0	0	0	0	5
Massachusetts:											
Boston.....	85	78	0	0	0	10	1	0	0	46	265
Fall River.....	5	3	0	0	0	3	0	0	0	4	32
Springfield.....	8	4	0	0	0	3	0	0	0	15	42
Worcester.....	10	13	0	0	0	1	0	0	0	22	50
Rhode Island											
Pawtucket.....	2	5	0	0	0	0	0	0	1	6	20
Providence.....	12	13	0	0	0	3	1	0	0	11	68
Connecticut:											
Bridgeport.....	13	17	0	0	0	1	0	0	0	0	33
Hartford.....	6	7	0	0	0	1	0	0	0	2	51
New Haven.....	9	9	0	0	0	0	0	0	0	12	46
MIDDLE ATLANTIC											
New York											
Buffalo.....	29	29	0	0	0	11	1	0	0	19	149
New York.....	378	344	0	0	0	121	7	12	1	79	1,618
Rochester.....	14	7	0	0	0	1	1	0	0	3	75
Syracuse.....	11	28	0	0	0	1	0	0	0	56	42
New Jersey:											
Camden.....	7	5	0	0	0	1	0	1	0	0	50
Newark.....	42	52	0	0	0	11	1	0	0	27	123
Trenton.....	5	10	0	0	0	6	0	0	0	1	40
Pennsylvania:											
Philadelphia.....	104	138	0	0	0	33	2	1	0	18	544
Pittsburgh.....	31	35	0	0	0	15	1	0	0	41	185
Reading.....	6	1	0	0	0	3	0	0	0	12	34
Scranton.....	3	5	0	0	0	0	0			2	

City reports for week ended March 22, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culosis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases, re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
EAST NORTH CENTRAL											
Ohio											
Cincinnati	20	14	2	3	0	6	0	0	0	5	140
Cleveland	41	111	0	0	0	17	1	0	0	46	208
Columbus	10	10	1	1	0	4	0	0	0	4	96
Toledo	13	13	0	5	0	3	0	1	0	5	64
Indiana											
Fort Wayne	6	0	0	9	0	1	0	0	0	6	26
Indianapolis	11	17	9	9	0	6	0	0	0	6	30
South Bend	3	10	0	1	0	2	0	0	0	0	24
Terre Haute	3	6	0	0	0	1	0	0	0	0	24
Illinois											
Chicago	134	320	2	6	0	51	2	0	0	72	778
Springfield	4	1	0	0	0	0	0	0	0	7	23
Michigan											
Detroit	118	122	2	2	0	30	1	0	0	54	31
Flint	12	16	2	1	0	1	0	0	0	14	33
Grand Rapids	9	11	0	0	0	0	0	0	0	1	31
Wisconsin											
Kenosha	2	3	0	0	0	1	0	0	0	2	6
Madison	4	1	0	2	0	0	1	0	0	17	124
Milwaukee	36	24	1	0	0	6	0	1	0	33	18
Racine	4	3	1	0	0	1	0	0	0	4	14
Superior	4	0	0	0	0	2	0	0	0	0	14
WEST NORTH CENTRAL											
Minnesota											
Duluth	10	0	0	8	0	1	0	2	0	15	24
Minneapolis	54	22	3	0	0	3	0	0	0	4	99
St. Paul	33	18	1	0	0	3	0	0	0	20	66
Iowa											
Davenport	2	1	1	26	0	0	0	0	0	0	29
Des Moines	9	18	1	17	0	0	0	0	0	7	1
Sioux City	1	6	0	3	0	0	0	0	0	1	0
Waterloo	3	0	0	19	0	0	0	0	0	1	0
Missouri											
Kansas City	21	38	2	3	3	4	0	0	0	8	116
St. Joseph	2	4	1	1	0	0	0	0	1	0	32
St. Louis	39	45	2	8	0	14	1	2	0	11	250
North Dakota											
Fargo	1	4	0	0	0	0	0	0	0	8	0
Grand Forks	1	2	0	0	0	0	0	0	0	0	0
South Dakota											
Aberdeen	2	0	0	0	0	0	0	0	0	2	8
Sioux Falls	2	0	1	4	0	0	0	0	0	0	0
Nebraska											
Omaha	4	8	3	6	0	4	0	0	0	5	57
Kansas											
Topeka	3	4	1	0	0	1	0	0	0	13	16
Wichita	5	24	2	2	0	3	0	1	0	3	31
SOUTH ATLANTIC											
Delaware											
Wilmington	5	9	0	0	0	1	0	0	0	1	31
Maryland											
Baltimore	32	68	0	0	0	17	1	3	2	4	267
Cumberland	1	0	0	0	0	0	0	0	0	0	11
Frederick	0	2	0	0	0	0	0	0	0	0	4
District of Col											
Washington	27	26	1	0	0	14	1	0	0	12	147
Virginia											
Lynchburg	1	3	0	0	0	0	0	0	0	6	8
Norfolk	2	1	0	0	0	3	0	0	0	0	47
Richmond	3	10	0	0	0	1	0	0	0	1	17
Roanoke	1	4	0	0	0	2	0	0	0	12	17
West Virginia											
Charleston	0	1	1	0	0	0	0	4	0	20	15
Wheeling	2	0	0	0	0	0	0	0	0	15	21
North Carolina											
Raleigh	0	0	1	1	0	1	0	0	0	3	13
Wilmington	1	1	0	0	0	0	0	0	0	18	9
Winston-Salem	0	2	2	0	0	0	0	0	0	2	19

City reports for week ended March 22, 1930—Continued

Divis.on, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
SOUTH ATLANTIC— continued											
South Carolina:											
Charleston.....	0	0	0	0	0	3	0	0	0	0	24
Columbia.....	0	0	0	0	0	4	1	0	0	12	24
Georgia:											
Atlanta.....	5	14	4	0	0	4	0	0	0	2	88
Brunswick.....	0	0	0	0	0	0	0	0	0	0	3
Savannah.....	0	1	1	0	0	1	0	0	0	2	30
Florida:											
Miami.....	1	4	0	0	0	3	0	0	0	2	42
Tampa.....	1	2	0	0	0	2	1	0	0	0	34
EAST SOUTH CENTRAL											
Kentucky:											
Covington.....	2	1	0	1	0	1	0	0	0	0	16
Tennessee:											
Memphis.....	9	21	2	0	0	6	1	12	0	12	102
Nashville.....	4	5	1	0	0	5	1	0	0	0	52
Alabama:											
Birmingham....	3	0	5	0	0	3	1	0	1	3	66
Mobile.....	0	1	1	0	0	0	0	0	0	0	24
Montgomery....	0	2	0	0			0	2		0	
WEST SOUTH CEN- TRAL											
Arkansas:											
Fort Smith.....	0	0	0	0			0	0		2	
Little Rock.....	1	1	0	1	0	1	0	1	0	0	
Louisiana:											
New Orleans....	7	18	1	0	0	21	2	1	0	1	173
Shreveport.....	1	0	1	0	0	2	0	0	1	3	38
Oklahoma:											
Oklahoma City....	2	9	3	4	0	2	0	0	0	0	42
Tulsa.....	1	3	2	8			0	1		17	
Texas:											
Dallas.....	5	5	4	0	0	2	0	0	0	0	56
Fort Worth.....	1	2	3	1	0	0	0	0	0	0	
Galveston.....	0	1	0	0	0	1	1	0	0	0	18
Houston.....	1	6	2	9	0	7	0	1	0	0	62
San Antonio....	0	0	0	4	0	13	0	0	0	0	59
MOUNTAIN											
Montana:											
Billings.....	1	2	0	0	0	0	0	0	0	0	6
Great Falls.....	1	17	1	0	0	0	0	0	0	0	9
Helena.....	0	0	0	0	0	0	0	0	0	4	2
Missoula.....	1	0	0	2	0	0	0	0	1	0	10
Idaho:											
Boise.....	0	1	1	0	0	0	0	0	0	2	7
Colorado:											
Denver.....	13	14	0	0	0	10	0	0	0	30	94
Pueblo.....	1	0	1	0	0	0	0	2	0	0	8
New Mexico:											
Albuquerque....	2	3	0	0	0	2	0	0	0	2	7
Arizona:											
Phoenix.....	1	2	1	9	0	4	0	0	0	0	
Utah:											
Salt Lake City..	3	4	2	0	0	0	0	0	0	28	39
Nevada:											
Reno.....	0	2	1	2	0	0	0	0	0	0	4
PACIFIC											
Washington:											
Seattle.....	9	17	2	14			1	3		10	
Spokane.....	7	1	8	16			0	1		7	
Tacoma.....	3	0	4	8	0	0	0	0	0	7	37
Oregon:											
Portland.....	5	8	12	5	0	2	0	1	0	11	91
Salem.....	0	1	0	0	0	0	0	0	0	4	
California:											
Los Angeles....	34	53	2	7	0	36	1	1	1	36	311
Sacramento....	3	4	1	6	0	4	1	0	0	4	29
San Francisco..	22	25	2	0	0	18	1	0	0	1	109

City reports for week ended March 22, 1930—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Tellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Maine:									
Portland.....	0	0	1	0	0	0	0	0	0
Massachusetts:									
Boston.....	2	1	0	0	0	0	0	0	0
Worcester.....	1	0	0	0	0	0	0	0	0
Connecticut:									
Bridgeport.....	1	1	0	0	0	0	0	0	0
New Haven.....	0	3	0	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
New York City.....	19	5	3	0	0	0	1	1	0
New Jersey:									
Newark.....	1	0	0	0	0	0	1	0	0
Trenton.....	0	0	0	1	0	0	0	0	0
Pennsylvania:									
Philadelphia.....	4	2	1	0	0	0	0	0	0
Pittsburgh.....	2	2	0	0	0	0	0	0	0
EAST NORTH CENTRAL									
Ohio:									
Cleveland.....	4	1	0	0	0	0	0	0	0
Columbus.....	2	0	0	0	0	0	0	0	0
Indiana:									
Fort Wayne.....	1	1	0	0	0	0	0	0	0
Indianapolis.....	3	3	0	0	0	0	0	0	0
Terre Haute.....	0	2	0	0	0	0	0	0	0
Illinois:									
Chicago.....	5	6	0	2	0	0	0	0	0
Michigan:									
Detroit.....	24	0	1	0	0	0	0	0	0
Wisconsin:									
Milwaukee.....	1	1	0	0	0	0	0	0	0
Racine.....	1	0	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
St. Paul.....	1	0	0	0	0	0	0	0	0
Iowa:									
Sioux City.....	1	1	0	0	0	0	0	0	0
Waterloo.....	3	0	0	0	0	0	0	0	0
Missouri:									
Kansas City.....	5	1	0	0	0	0	0	0	0
St. Joseph.....	1	0	0	0	0	0	0	0	0
St. Louis.....	4	2	0	0	0	0	0	0	0
North Dakota:									
Fargo.....	1	0	0	0	0	0	0	0	0
Nebraska:									
Omaha.....	1	0	0	0	0	0	0	0	0
SOUTH ATLANTIC									
Maryland:									
Baltimore.....	1	1	1	0	0	0	0	0	0
District of Columbia:									
Washington.....	0	0	0	0	1	0	0	1	0
North Carolina:									
Raleigh.....	0	0	0	0	1	0	0	0	0
Winston-Salem.....	0	0	0	0	2	0	0	0	0
South Carolina:									
Charleston ¹	0	0	0	0	1	1	0	0	0
Columbia.....	0	0	0	0	0	2	0	0	0
Georgia:									
Atlanta.....	9	1	0	0	0	0	0	1	1
Savannah.....	0	0	0	0	3	0	0	0	0

¹ Nonresident.

City reports for week ended March 22, 1930—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
EAST SOUTH CENTRAL									
Tennessee									
Memphis	0	8	0	0	0	1	0	0	0
Nashville	1	0	0	0	0	0	0	0	0
Alabama									
Mobile	1	0	0	0	0	0	0	0	0
WEST SOUTH CENTRAL									
Louisiana									
New Orleans	0	0	0	0	7	1	0	0	0
Texas									
Dallas	0	0	0	0	2	1	0	0	0
Houston	0	0	0	0	1	0	0	0	0
MOUNTAIN									
Colorado									
Denver	1	0	0	0	0	0	0	0	0
Utah									
Salt Lake City	4	2	0	0	0	0	0	0	0
PACIFIC									
Washington									
Seattle	7	0	0	0	0	0	0	0	0
Spokane	1	0	0	0	0	0	0	0	0
California									
Los Angeles	5	1	0	0	0	0	0	1	0
San Francisco	3	1	1	0	1	0	0	0	0

¹ Dengue. 1 case at Charleston, S. C.

The following tables gives the rates per 100,000 population for 98 cities for the 5-week period ended March 22, 1930, compared with those for a like period ended March 23, 1929. The population figures used in computing the rates are approximate estimates, authoritative figures for many of the cities not being available. The 98 cities reporting cases have an estimated aggregate population of more than 32,000,000. The 91 cities reporting deaths have more than 30,500,000 estimated population.

*Summary of weekly reports from cities, February 16 to March 22, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period or 1929*¹

DIPHTHERIA CASE RATES

	Week ended -									
	Feb 22, 1930	Feb 23, 1929	Mar 1, 1930	Mar 2, 1929	Mar 8, 1930	Mar 9, 1929	Mar. 15, 1930	Mar 16, 1929	Mar. 22, 1930	Mar. 23, 1929
98 cities	93	118	² 107	121	90	133	² 101	126	100	135
New England	100	117	111	123	84	108	84	135	60	119
Middle Atlantic	87	130	109	140	80	185	90	159	102	180
East North Central	102	106	⁴ 125	131	95	130	135	121	133	142
West North Central	93	131	118	135	116	144	108	152	72	131
South Atlantic	110	67	88	64	71	67	³ 99	84	82	60
East South Central	108	68	61	55	40	68	27	55	40	41
West South Central	86	175	108	145	153	114	120	95	146	118
Mountain	69	44	⁴ 0	61	86	61	26	44	86	35
Pacific	61	168	73	72	45	36	73	65	52	68

¹ The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1930 and 1929, respectively.

² South Bend, Ind., and Denver, Colo., not included.

³ Charleston, W. Va., and Savannah, Ga., not included.

⁴ South Bend, Ind., not included.

Summary of weekly reports from cities, February 16 to March 22, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929—Continued

MEASLES CASE RATES

	Week ended—									
	Feb. 22, 1930	Feb. 23, 1929	Mar. 1, 1930	Mar. 2, 1929	Mar. 8, 1930	Mar. 9, 1929	Mar. 15, 1930	Mar. 16, 1929	Mar. 22, 1930	Mar. 23, 1929
98 cities.....	456	456	² 548	578	634	537	² 662	679	793	757
New England.....	383	382	463	635	543	424	680	617	944	563
Middle Atlantic.....	267	140	364	158	440	162	418	135	508	179
East North Central.....	209	883	² 351	1,142	447	983	476	1,387	543	1,595
West North Central.....	759	1,253	920	1,555	918	1,609	765	1,967	973	1,882
South Atlantic.....	403	107	136	197	489	234	² 449	380	664	461
East South Central.....	081	0	850	62	810	62	715	41	1,457	137
West South Central.....	799	80	755	57	542	103	661	141	587	190
Mountain.....	747	923	² 1,004	697	2,051	818	2,386	636	2,815	766
Pacific.....	1,483	145	1,908	229	1,845	142	2,194	133	2,100	239

SCARLET FEVER CASE RATES

98 cities.....	301	261	² 367	298	329	298	² 346	324	323	345
New England.....	374	292	368	337	394	308	390	368	341	364
Middle Atlantic.....	255	202	325	230	298	228	345	266	310	308
East North Central.....	425	341	² 513	402	452	411	466	418	422	495
West North Central.....	321	373	334	321	338	356	302	368	328	292
South Atlantic.....	216	144	236	137	189	155	² 200	146	262	159
East South Central.....	169	185	196	219	196	198	108	232	202	308
West South Central.....	101	270	116	202	149	270	179	366	116	270
Mountain.....	300	113	² 685	218	292	157	369	157	343	113
Pacific.....	236	292	411	493	281	410	267	444	236	367

SMALLPOX CASE RATES

98 cities.....	24	12	² 31	16	25	12	² 25	12	25	11
New England.....	0	0	0	2	2	0	0	4	0	7
Middle Atlantic.....	0	0	0	0	0	0	0	0	0	0
East North Central.....	20	15	² 40	24	24	18	30	20	20	12
West North Central.....	91	15	89	15	78	6	68	31	95	12
South Atlantic.....	2	4	2	7	2	6	² 4	6	2	0
East South Central.....	13	0	7	7	20	7	27	7	7	7
West South Central.....	56	95	120	107	67	95	26	42	52	99
Mountain.....	17	35	² 51	87	9	44	9	17	34	44
Pacific.....	118	19	102	24	123	17	135	22	120	14

TYPHOID FEVER CASE RATES

98 cities.....	5	4	² 8	4	8	5	² 6	5	8	7
New England.....	4	9	0	2	2	4	4	2	0	7
Middle Atlantic.....	7	4	4	2	4	4	5	4	7	6
East North Central.....	1	2	² 1	0	3	3	1	2	1	4
West North Central.....	2	6	6	8	8	4	4	2	9	6
South Atlantic.....	13	4	55	2	37	6	² 2	7	13	6
East South Central.....	7	7	34	14	13	7	27	7	94	27
West South Central.....	4	8	0	19	31	19	7	11	11	8
Mountain.....	9	0	² 0	9	0	0	51	26	17	9
Pacific.....	12	5	7	7	7	17	12	10	12	19

² South Bend, Ind., and Denver, Colo., not included.

³ Charleston, W. Va., and Savannah, Ga., not included.

⁴ South Bend, Ind., not included.

⁵ Denver, Colo., not included.

Summary of weekly reports from cities, February 16 to March 22, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929—Continued

INFLUENZA DEATH RATES

	Week ended —									
	Feb. 22, 1930	Feb. 23, 1929	Mar. 1, 1930	Mar. 2, 1929	Mar. 8, 1930	Mar. 9, 1929	Mar. 15, 1930	Mar. 16, 1929	Mar. 22, 1930	Mar. 23, 1929
91 cities.....	20	45	^a 20	39	17	34	^a 14	33	16	27
New England.....	16	40	11	20	18	16	2	25	2	4
Middle Atlantic.....	16	35	17	30	13	25	12	31	14	23
East North Central.....	16	33	^a 16	31	13	31	9	23	9	20
West North Central.....	12	45	15	39	3	21	6	27	12	30
South Atlantic.....	20	69	26	67	33	47	^a 18	37	26	30
East South Central.....	81	82	59	149	66	75	96	119	88	90
West South Central.....	73	133	69	86	34	117	46	102	27	74
Mountain.....	26	78	^a 31	52	34	61	17	35	60	78
Pacific.....	3	38	12	31	3	22	3	16	9	31

PNEUMONIA DEATH RATES

	192	193	^a 198	222	170	203	^a 164	184	165	168
91 cities.....	182	193	^a 198	222	170	203	^a 164	184	165	168
New England.....	221	233	213	272	202	218	155	200	199	186
Middle Atlantic.....	200	192	230	240	191	233	204	197	168	190
East North Central.....	153	170	^a 180	180	142	160	128	155	150	141
West North Central.....	151	207	138	228	127	195	142	180	121	189
South Atlantic.....	203	238	216	255	203	234	^a 183	198	203	185
East South Central.....	272	157	199	284	243	239	265	201	214	172
West South Central.....	188	250	199	207	172	226	153	220	214	78
Mountain.....	240	226	^a 223	279	146	183	120	232	189	165
Pacific.....	83	129	77	148	92	138	80	135	95	163

^a South Bend, Ind., and Denver, Colo., not included.

^a Charleston, W. Va., and Savannah, Ga., not included.

^a South Bend, Ind., not included.

^a Denver, Colo., not included.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Week ended March 8, 1930.—The Department of Pensions and National Health reports cases of certain communicable diseases in the provinces of Canada for the week ended March 8, 1930, as follows:

Provinces	Cerebro-spinal fever	Influenza	Lethargic encephalitis	Small-pox	Typhoid fever
Prince Edward Island.....		20			
Nova Scotia.....		3			
New Brunswick.....	1				3
Quebec.....	3				20
Ontario.....		10	3	50	13
Manitoba.....					
Saskatchewan.....				10	3
Alberta.....	1				1
British Columbia.....	2			6	1
Total.....	7	33	3	66	41

1 No case of any disease included in the table was reported during the week.

Quebec Province—Communicable diseases—Week ended March 22, 1930.—During the week ended March 22, 1930 cases of certain communicable diseases were reported in the Province of Quebec, Canada, as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis.....	4	Mumps.....	152
Chicken pox.....	97	Scarlet fever.....	126
Diphtheria.....	43	Smallpox.....	1
Erysipelas.....	13	Tuberculosis (pulmonary).....	77
German measles.....	16	Typhoid fever.....	19
Influenza.....	7	Whooping cough.....	70
Measles.....	140		

Quebec Province—Vital statistics—January, 1930.—Births, deaths, and marriages for the month of January, 1930, in the Province of Quebec, Canada, with deaths from certain principal causes, are shown in the following table:

Estimated population.....	2,735,000	Deaths from—Continued	
Births.....	6,504	Heart disease.....	379
Birth rate per 1,000 population.....	28.0	Influenza.....	85
Deaths.....	3,143	Measles.....	115
Death rate per 1,000 population.....	13.5	Pneumonia.....	338
Marriages.....	1,079	Polomyelitis.....	3
Deaths under 1 year.....	810	Scarlet fever.....	23
Deaths under 1 year per 1,000 births.....	124.5	Syphilis.....	11
Deaths from—		Tuberculosis (pulmonary).....	160
Cancer.....	185	Tuberculosis (other forms).....	54
Cerebrospinal meningitis.....	14	Typhoid fever.....	15
Diabetes.....	20	Violence.....	76
Diarrhea.....	123	Whooping cough.....	45
Diphtheria.....	50		

CHINA

Meningitis.—During the week ended March 28, 1930, 29 cases of meningitis were reported at Shanghai, China.

CZECHOSLOVAKIA

Communicable diseases—December, 1929–January, 1930.—During the months of December, 1929, and January, 1930, certain communicable diseases were reported in Czechoslovakia, as follows:

Disease	December, 1929		January, 1930	
	Cases	Deaths	Cases	Deaths
Anthrax.....	2		5	
Cerebrospinal meningitis.....	11	4	18	5
Diphtheria.....	2,827	185	2,306	150
Dysentery.....	35	1	48	12
Malaria.....			2	
Paratyphoid fever.....	6	1	6	2
Puerperal fever.....	56	24	63	19
Scarlet fever.....	2,545	83	1,855	58
Trachoma.....	215		164	
Typhoid fever.....	711	77	563	48
Typhus fever.....	2		10	2

ITALY

Communicable diseases—Four weeks ended November 24, 1929.—During the four weeks ended November 24, 1929, communicable diseases were reported in the Kingdom of Italy, as follows:

Disease	Oct. 28–Nov. 3		Nov. 4–10		Nov. 11–17		Nov. 18–24	
	Cases	Com-munes affected	Cases	Com-munes affected	Cases	Com-munes affected	Cases	Com-munes affected
Anthrax.....	41	35	37	33	58	38	18	16
Cerebrospinal meningitis.....	6	6	14	14	13	11	4	4
Chicken pox.....	173	79	168	89	306	114	356	88
Diphtheria.....	863	384	833	386	856	416	594	322
Dysentery.....	18	13	17	12	11	8	16	11
Lethargic encephalitis.....	2	2	3	3	2	2	1	1
Measles.....	1,240	215	1,081	213	1,754	234	1,098	207
Poliomylitis.....	13	11	29	20	15	13	13	11
Scarlet fever.....	705	249	671	233	782	228	473	187
Typhoid fever.....	1,124	541	1,000	481	917	465	681	358

PORTO RICO

San Juan—Communicable diseases—Five weeks ended February 15, 1930.—During the five weeks ended February 15, 1930, cases of certain communicable diseases were reported in San Juan, P. R., as follows:

Disease	Cases	Disease	Cases
Diphtheria.....	5	Puerperal fever.....	2
Filariasis.....	2	Tetanus.....	4
Leprosy.....	1	Tuberculosis.....	103
Malaria.....	34	Typhoid fever.....	4
Measles.....	1	Whooping cough.....	9

YUGOSLAVIA

Communicable diseases—February, 1930.—During the month of February, 1930, certain communicable diseases were reported in Yugoslavia, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax.....	27	3	Measles.....	1,886	23
Cerebrospinal meningitis.....	21	6	Polomyelitis.....	1	
Diphtheria and croup.....	541	77	Scarlet fever.....	1,039	173
Dysentery.....	31	3	Tetanus.....	13	10
Glanders.....	2	2	Typhoid fever.....	244	41
Lethargic encephalitis.....	2	2	Typhus fever.....	33	5

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

From medical officers of the Public Health Service, American consuls, International Office of Public Hygiene, Pan American Sanitary Bureau, health section of the League of Nations, and other sources. The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

CHOLERA

[C indicates cases; D, deaths; P, present]

Place	Aug. 25- Sept. 21, 1929	Sept. 22- Oct. 19, 1929	Oct. 20- Nov. 16, 1929	Nov. 17- Dec. 14, 1929	Dec. 15, 1929- Jan. 11, 1930	Week ended—						
						January, 1930			February, 1930			
						18	25	1	8	15	22	March, 1930
China:												
Canton.....	1											
Hankow.....	1			2								
Manchuria—			4									
Dairen.....												1
Newchwang.....	1											
Nanking.....	984	35	P									
Shanghai.....	69	11										
.....	37	22	12	2								
Syngow.....		P										
Tientsin.....												
Chosen: Chemulpo.....	P	16,354	17,340	19,552	12,350	1,972	1,659	1,242				
India.....	16,667	10,051	10,080	10,903	6,507	1,122	948	718				
Bombay.....	135	160	252	265	138	44	41	33	84	65	46	53
Calcutta.....	59	70	129	114	90	28	21	23	38	45	27	25
Karachi.....	11		3	2								56
Madras.....			2	2								
Negapatam.....			2					12				
Rangoon.....					1	2	2	2	1	1	1	1
Tuttorin.....		1	2	1	6	2	2		1			
India (French):		18	5	23	35	3	3		1			
Chandernagor.....	11	11	3	6	9	1						
Karikal.....	1	1	5	14	1							P
Fondicherry Province.....			5	12	1							
.....	3	3		4	3							

Place	Janu- ber, 1929	De- cem- ber, 1929	Octo- ber, 1929	Septem- ber, 1929	Aug- ust, 1929	Place	Janu- ary, 1930	De- cem- ber, 1929	Octo- ber, 1929	Septem- ber, 1929	Aug- ust, 1929	Place	Janu- ary, 1930	De- cem- ber, 1929	Octo- ber, 1929	Septem- ber, 1929	Aug- ust, 1929
British East Africa (see also table above):																	
Kenya.....	19	28	146	157	54	34											
Uganda.....	806	511	394	179	216	87											
Ecuador: Guayaquil.....	740	451	351	164	199	75											
Plague-infected rats.....	6	7	12	14	17	8											
Greece (see also table above):	1	3	4	3	6	4											
Indo-China (see also table above):	4	8	5	9	13	4											
Madagascar (see also table above):	2	5	5	2	1												
Ambohitra Province.....	1	2	2	1	10												
Antsirabe Province.....	9	195	203	182													
Itasy Province.....	48	182	193	163													
Majunga Province.....	46	9	9	42													
Miarinarivo.....	9	9	2	33													
Antsirabe Province.....	1	13	17	5													
Itasy Province.....	1	13	17	5													
Majunga Province.....	2	5	10	10													
Miarinarivo.....	2	2															
Madagascar—Continued.																	
Moramanga Province.....	C	C	C	C	C	C											
Tamatave Province.....	C	C	C	C	C	C											
Tananarive Province.....	C	C	C	C	C	C											
Peru.....	C	C	C	C	C	C											
Senegal.....	C	C	C	C	C	C											
Baol.....	C	C	C	C	C	C											
Dakar.....	C	C	C	C	C	C											
Louga.....	C	C	C	C	C	C											
Rufisque.....	C	C	C	C	C	C											
Thies.....	C	C	C	C	C	C											
Tiavaouane.....	C	C	C	C	C	C											
Tiavaouane.....	C	C	C	C	C	C											

1 Incomplete reports.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX

[C indicates cases; D, deaths; P, present]

Place	Sept. 22- Oct. 19, 1929	Oct. 20- Nov. 16, 1929	Nov. 17- Dec. 14, 1929	Dec. 15- Jan. 11, 1930	Week ended—									
					January, 1930					February, 1930				
					18	25	1	8	15	22	1	8	15	22
Algeria.....														
Algiers.....	C	1	2	3										
Constantine.....	C													
Oran.....	C													
Arabia: Aden.....	C	3	2	4	1	4	1	1	1	1				
Bolivia: La Paz (see table below).	D													
Brazil:														
Porto Alegre.....		2	5											
Rio de Janeiro.....	C				1									
British Borneo: Sarawak.....	C													
British East Africa (see also table below):														
Tanganyika.....	C	3	41	50	27	5			4	2	15	2		
British South Africa:	D		4	10	5									
Northern Rhodesia.....	C		907	54										
Southern Rhodesia.....	C	5	6	53	33									
Canada:	D			4	6									
Alberta.....		1	12	22	16	4	2	8	8		1	3	2	
Calgary.....	C	3												
Edmonton.....	C	3	12	11	15	4	1	8	6		1			
British Columbia—Vancouver.....	C	15	9	14	17	3	6	4	3	5	4	1	6	1
Manitoba.....	C		2	6	8	1	1	1	3	2		1	2	
New Brunswick.....	C													
Ontario.....	C	1												
Fort William.....	C	7	17	63	51	19	13	19	12	28	8	50	38	
London.....	C								4					
Niagara Falls.....	C		4											
North Bay.....	C		1											
Ottawa.....	C	7	5	2										
Sarnia.....	C		1	4	7	5	1	3	1	1	2	6	9	
Toronto.....	C		1	1										
Windsor.....	C	1	2			2								

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		Week ended—																			
		Sept		Oct.		Nov.		Dec.		January, 1930				February, 1930				March, 1930			
		22-	19-	20-	17-	18-	15-	12-	9-	18-	25-	1	8	15	22	1	8	15	22		
		1929	1929	1929	1929	1929	1929	1929	1929	1929	1929	1929	1929	1929	1929	1929	1929	1929	1929		
Great Britain:																					
England and Wales.....	C	490	643	964	1,005	414	313	354	374	322	376	439	383	433							
Ashton under Lyne.....	C	2	1	6	3	2	1	1	4	2	8	7	11	5							
Bradford.....	C	1	6	13	20	8	1	1	4	2	3	7	11	5							
Cardiff.....	C	1	1	1	1	1	1	1	1	1	1	1	1	1							
Leeds.....	C	156	174	321	480	158	127	157	156	138	193	183	185	210							
London.....	C	332	442	783	799	296	239	281	283	255	312	292	297	323							
London and Great Towns.....	D	1	1	1	1	1	1	1	1	1	1	4	4	1							
Newcastle-on-Tyne.....	C	1	9	1	12	3	6	3	3	2	10	20	9	18							
Stoke-on-Trent.....	C	7	9	1	1	1	1	1	1	1	1	1	1	1							
Greece: Patras.....	C	5	7	6	11	11	1	1	1	1	1	1	1	1							
Hedjaz.....	D	1	6	1	7	1	1	1	1	1	1	1	1	1							
Honduras: Choluteca.....	D	3, 111	3, 237	7, 644	12, 789	4, 765	6, 461	7, 562	1, 339	1, 751	1, 339	1, 751	1, 339	1, 751							
India.....	C	661	730	1, 963	3, 730	1, 255	1, 339	1, 751	1, 339	1, 751	1, 339	1, 751	1, 339	1, 751							
Bombay.....	D	11	12	14	19	85	74	86	97	112	155	173	188								
Calcutta.....	D	11	12	14	19	85	74	86	97	112	155	173	188								
Cochin.....	D	11	12	14	19	85	74	86	97	112	155	173	188								
Cochin.....	D	11	12	14	19	85	74	86	97	112	155	173	188								
Cochin.....	D	11	12	14	19	85	74	86	97	112	155	173	188								
Cochin.....	D	11	12	14	19	85	74	86	97	112	155	173	188								
Cochin.....	D	11	12	14	19	85	74	86	97	112	155	173	188								
Cochin.....	D	11	12	14	19	85	74	86	97	112	155	173	188								
Cochin.....	D	11	12	14	19	85	74	86	97	112	155	173	188								
Cochin.....	D	11	12	14	19	85	74	86	97	112	155	173	188								
Cochin.....	D	11	12	14	19	85	74	86	97	112	155	173	188								
Cochin.....	D	11	12	14	19	85	74	86	97	112	155	173	188								
Cochin.....	D	11	12	14	19	85	74	86	97	112	155	173	188								
Cochin.....	D	11	12	14	19	85	74	86	97	112	155	173	188								
Cochin.....	D	11	12	14	19	85	74	86	97	112	155	173	188								
Cochin.....	D	11	12	14	19	85	74	86	97	112	155	173	188								
Cochin.....	D	11	12	14	19	85	74	86	97	112	155	173	188								
Cochin.....	D	11	12	14	19	85	74	86	97	112	155	173	188								
Cochin.....	D	11	12	14	19	85	74	86	97	112	155	173	188								
Cochin.....	D	11	12	14	19	85	74	86	97	112	155	173	188								
Cochin.....	D	11	12	14	19	85	74	86	97	112	155	173	188								
Cochin.....	D	11	12	14	19	85	74	86	97	112	155	173	188								
Cochin.....	D	11	12	14	19	85	74	86	97	112	155	173	188								
Cochin.....	D	11	12	14	19	85	74	86	97	112	155	173	188								
Cochin.....	D	11	12	14	19	85	74	86	97	112	155	173	188								
Cochin.....	D	11	12	14	19	85	74	86	97	112	155	173	188								
Cochin.....	D	11	12	14	19	85	74	86	97	112	155	173	188								
Cochin.....	D	11	12	14	19	85	74	86	97	112	155	173	188								
Cochin.....	D	11	12	14	19	85	74	86	97	112	155	173	188								
Cochin.....	D	11	12	14	19	85	74	86	97	112	155	173	188								
Cochin.....	D	11	12	14	19	85	74	86	97	112	155	173	188								
Cochin.....	D	11	12	14	19	85	74	86	97	112	155	173	188								
Cochin.....	D	11	12	14	19	85	74	86	97	112	155	173	188								
Cochin.....	D	11	12	14	19	85	74	86	97	112	155	173	188								
Cochin.....	D	11	12	14	19	85	74	86	97	112	155	173	188								
Cochin.....	D	11	12	14	19	85	74	86	97	112	155	173	188								
Cochin.....	D	11	12	14	19	85	74	86	97	112	155	173	188								
Cochin.....	D	11	12	14	19	85	74	86	97	112	155	173	188								
Cochin.....																					

UNITED STATES TREASURY DEPARTMENT

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SPECIAL ARTICLES

Accidental Psittacosis Infection Among Laboratory
Workers

A New Meningococcus-like Organism from Epidemic
Meningitis

Venereal Diseases Among Seamen in the Port of New
York



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ACCIDENTAL PSITTACOSIS INFECTION AMONG THE PERSONNEL OF THE HYGIENIC LABORATORY

By G. W. McCoy, *Director, Hygienic Laboratory, United States Public Health Service*

Experimental work on psittacosis was begun at the Hygienic Laboratory on January 16, 1930. Eleven cases of the disease developed among the personnel of the institution with onset of the first definite symptoms between January 25 and March 15, 1930.

The psittacosis work was carried on in one of the main laboratory buildings. Usually there are 54 persons employed in this building, which houses the activities of the division of pathology and bacteriology and certain administrative units of the laboratory. About 20 per cent of these persons developed the disease. In a building about 85 feet distant, but connected by a tunnel and a causeway, 57 persons are employed, none of whom became infected. In a third building, somewhat isolated from the other buildings, 10 persons are employed, and these also escaped. Thus, all of the cases occurred among the 44 per cent of the personnel of the entire laboratory, employed in one building, while no case developed among the 56 per cent of the personnel employed in the other buildings. People from each of the other buildings had free access to the building to which the infection was confined, but for the most part they did not visit it frequently nor for prolonged periods.

During the period when work on psittacosis, which involved the handling of infected materials or infected birds, was in progress, five members of the staff of the laboratory were engaged in the studies. Three of these handled infected parrots and parrakeets, and two of these persons developed psittacosis. Two workers were engaged in a study of cultures; and of these one became infected, although it is by no means certain that this one became infected from the cultures under investigation.

The two cases among the three persons working with infected birds were readily accounted for by the close contact with the contaminated materials required by their work. The third person in this group of those directly exposed to infection worked with infected birds during the period when all of the cases excepting the first one were infected, but remained well.

Two bacteriologists were engaged in the study of cultures derived from cases of psittacosis in man and those from healthy and from

infected birds. One of these persons remained well, while the other, who worked only with cultures in the third and fourth or later generations, developed the disease. None of these cultures was, or is, regarded as causative of the disease in birds or in man, and it is considered probable that the infection was derived from some source other than these cultures.

None of the eight remaining cases could be satisfactorily traced to any recognizable source of infection, as none of these individuals had anything to do with the work on psittacosis. As previously stated, they all worked in the building in which the psittacosis work was carried on, though that work was confined to certain rooms to which only those engaged on the problem had access. The usual safeguards employed in connection with studies of dangerous infections were observed throughout the study.

There were no good grounds for believing that any one of these 11 cases was due to contact with persons in the incubation stage of, or sick with, psittacosis. This view is strengthened by the fact that no case developed among members of families of victims or among persons caring for the sick.

The cases are listed here in the order of their occurrence:

No.	Duties	Exposure to infected birds	First symptoms
1	Laboratory assistant.....	Yes.....	Jan. 25, 1930
2	Research worker.....	Yes.....	Feb. 6, 1930
3	Night watchman.....	No.....	Feb. 15, 1930
4	Laboratory assistant.....	No.....	Feb. 28, 1930
5	Research worker.....	No.....	Mar. 10, 1930
6	Foreman.....	Doubtful ¹	Mar. 11, 1930
7	Media maker.....	No.....	Mar. 12, 1930
8	Cleaner.....	No.....	Mar. 13, 1930
9	Research worker.....	No.....	Do.
10	do.....	No.....	Mar. 14, 1930
11	Cleaner.....	No.....	Mar. 15, 1930

¹ This man carried supplies to the door of the room in which infected birds were kept.

It will be observed that there was a rather long and fairly uniform interval between cases down to and including the fourth case, while the remaining seven cases form a group with dates of onset varying only to such an extent as to lead to the suspicion that all were infected from a common source, though we do not now know just what that source was. If we consider the usual period of incubation as 9 or 10 days (and there is much evidence to justify this), it is obvious that the members of the group of seven cases probably were infected in the early part of March.

The clinical picture (including physical signs) was sufficiently characteristic to put the diagnosis beyond reasonable question in each case. The first case proved fatal, while the remaining cases varied greatly in severity, but the victims recovered.

While it has long been recognized that infected parrots or other birds constituted a source of danger, this, so far as we know, is the first example of the infection occurring through the medium of contaminated environment without contact with infected birds. This occurrence suggests that the infectiveness of the virus of psittacosis for man is of a very high order.

A NEW MENINGOCOCCUS-LIKE ORGANISM (*Neisseria flavescens* n. sp.) FROM EPIDEMIC MENINGITIS¹

By SARA E. BRANHAM, *Bacteriologist, United States Public Health Service*

Of 155 strains of meningococci received at the Hygienic Laboratory during 1928 and 1929, 90.8 per cent could be typed according to the classification of Gordon and Murray (1) (2). All of these strains showed moist, translucent colonies on blood agar, fermented dextrose and maltose, were nonpigmented, and were agglutinated more or less by polyvalent antimeningococcus serums from eight different manufacturers. The remaining strains did not fall into any of these four serological groups represented in the Gordon-Murray classification, and they were not agglutinated by any of the polyvalent serums studied. Nine per cent, comprising 14 strains, formed a homogeneous antigenic group among themselves, each strain being agglutinated by antisera prepared with each of the other strains. Table 1 indicates this relation of the strains to each other and shows the lack of cross agglutination with any of the four well-known groups of meningococci.

These 14 strains were isolated from the spinal fluid of cases of cerebrospinal meningitis occurring during a single outbreak in one locality, viz, Chicago, Ill., in 1928. They were among 47 strains received from that city at approximately the same time, through the courtesy of Dr. F. O. Tonney, of the Chicago Department of Health. The remaining 33 were typical meningococci; 17 corresponded serologically with Gordon's Type IV, 4 with Type III, 2 with Type II, and 10 with Type I.

The case histories do not indicate that the clinical picture associated with these four uniformly atypical strains was different from that associated with the usual forms. Information was obtained concerning 11 of the 14 cases. They were all subacute and ran a relatively long course. At least 9 were given polyvalent antimeningococcus serum freely, and 7 of these recovered. Four are known to have died. No information could be obtained about the remaining cases.

Histories of the remaining 33 Chicago cases associated with typical meningococci do not indicate any striking difference. There were

¹From the Hygienic Laboratory, Washington, D. C.

very few fulminating cases represented by these strains. Nine of the 33 patients died.

TABLE 1.—Showing serological relationship of the 14 new strains and lack of cross agglutination with any of the 4 well-known groups of meningococci

Antigen strains	Serum 248 (strain 155)						Serum 465 (strain 218)						Serum 475 (strain 221)						Type Serum I (strain 176)					
	50	100	200	400	800	1600	50	100	200	400	800	1600	50	100	200	400	800	1600	50	100	200	400	800	1600
Serum dilutions.....																								
1-128.....	2	1	0	0	0	0	2	2	0	0	0	0	2	2	2	0	0	0	0	0	0	0	0	0
2-129.....	4	4	4	4	0	0	2	1	1	0	0	0	2	2	1	0	0	0	0	0	0	0	0	0
3-155.....	4	4	3	3	1	0	1	3	3	3	2	1	0	2	2	1	0	0	0	0	0	0	0	0
4-156.....	4	4	3	2	1	0	4	4	3	3	2	1	1	3	2	1	0	0	0	0	0	0	0	0
5-157.....	2	2	1	0	0	0	2	2	2	0	0	0	2	2	2	0	0	0	0	0	0	0	0	0
6-159.....	3	3	3	2	1	0	3	3	2	0	0	0	3	2	2	0	0	0	0	0	0	0	0	0
7-160.....	3	2	2	1	0	0	3	3	1	1	1	0	4	4	3	2	2	1	0	0	0	0	0	0
8-208.....	4	3	2	2	1	0	4	3	2	1	1	0	2	2	2	0	0	0	0	0	0	0	0	0
9-209.....	3	2	2	1	0	0	2	2	2	0	0	0	2	2	1	0	0	0	0	0	0	0	0	0
10-217.....	3	3	3	2	1	0	3	3	3	2	1	0	2	2	2	2	0	0	0	0	0	0	0	0
11-218.....	3	2	1	1	0	0	4	4	3	2	1	1	4	3	2	1	0	0	0	0	0	0	0	0
12-219.....	4	4	4	4	0	0	4	4	3	2	1	0	2	2	0	0	0	0	0	0	0	0	0	0
13-221.....	3	2	1	1	0	0	3	3	3	3	1	0	3	3	3	1	1	0	0	0	0	0	0	0
14-223.....	3	2	2	2	1	0	3	3	3	3	2	1	1	3	3	2	1	0	0	0	0	0	0	0
176 (I).....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	4	4	3	2	1
55 (II).....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0
57 (III).....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0
60 (IV).....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Antigen strains	Type Serum II (strain 55)						Type Serum III (strain 57)						Type Serum IV (strain 60)					
	50	100	200	400	800	1600	50	100	200	400	800	1600	50	100	200	400	800	1600
Serum dilutions.....																		
1-128.....	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0
2-129.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3-155.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-156.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-157.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6-159.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7-160.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8-208.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9-209.....	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
10-217.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11-218.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-219.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-221.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14-223.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
176 (I).....	0	0	0	0	0	0	2	1	1	1	0	0	0	0	0	0	0	0
55 (II).....	3	3	3	3	2	1	2	2	2	1	1	0	0	0	0	0	0	0
57 (III).....	2	2	2	0	0	0	2	3	3	3	3	2	0	0	0	0	0	0
60 (IV).....	0	0	0	0	0	0	0	0	0	0	0	0	4	4	4	3	1	0

0=No agglutination.

4=Complete agglutination

Aside from a lack of serological relationship, these 14 strains differ from typical meningococci in other ways. Colonies on blood agar are less moist than those of meningococci. They produce a golden yellow pigment and do not ferment any of the carbohydrates generally used in classifying this genus; viz, dextrose, levulose, maltose, and saccharose. They grow very poorly upon dextrose agar, upon which meningococci usually develop luxuriantly, but grow well upon blood agar and semisolid agar.

Morphologically these 14 strains are indistinguishable from other members of the genus *Neisseria* in that they are Gram-negative, biscuit-shaped cocci occurring in flattened pairs. Individual cells

vary in size and in intensity of staining, and the occurrence of giant forms of the cocci is common.

In 1906 von Lingelsheim (3) described 3 groups of yellow cocci of this genus, calling them *Diplococcus pharyngis flavus* I, *Diplococcus pharyngis flavus* II, and *Diplococcus pharyngis flavus* III. These three types varied from each other serologically, in type of yellow pigment, and in fermentation reactions, although all fermented at least dextrose and maltose.

Elser and Huntoon (4), in 1909, described 3 chromogenic groups which they designated by the Roman numerals I, II, and III. Their grouping differed from that of Lingelsheim, II including both I and II of the former classification, and I adding a new group. Bergey (5) has considered these groups of Elser and Huntoon as distinct species and called them *Neisseria perflava*, *Neisseria flava*, and *Neisseria subflava*.

The 14 strains described in this paper can not be placed in any of these species because of their failure to ferment any of the carbohydrates referred to above.

J. E. Gordon (6), studying the Gram-negative cocci found in colds and influenza in Chicago during 1921, found several strains which produced a yellow pigment and fermented no carbohydrates. Because of this latter feature he considered them a subgroup of *N. catarrhalis*.

The 14 strains which form the subject of this paper resemble those described by J. E. Gordon both in pigment production and lack of fermentative ability; but they do not resemble the strains of *N. catarrhalis* that we have obtained. Aside from cultural differences we have been unable to discover any serological relation to *N. catarrhalis*. *N. catarrhalis* is not agglutinated by any of the serums prepared with these 14 strains, nor are any of these 14 strains agglutinated by sera prepared with *N. catarrhalis* (see Table 2). Except for morphological similarity, which is possessed by all members of this genus, failure to ferment sugars is the only characteristic which they possess in common.

Another non-fermenting species of this genus was reported by von Lingelsheim (3) in 1906. He called it *Micrococcus cinereus*. Very few strains of this organism have been reported, and many classifications omit reference to it altogether. The most satisfactory description is given in the last edition of Lehmann and Neumann's *Bakteriologische Diagnostik* (7). No reference to pigment production by that organism has been found.

None of the 14 new strains described in this paper are agglutinated by normal horse serum, nor do they agglutinate spontaneously under ordinary conditions. A tendency to settle out can be overcome by a careful adjustment of the pH of the salt solution used in making

serum dilutions and antigen suspensions. This slight settling out was not sufficient to mask, or to be mistaken for, true agglutination.

TABLE 2.—Showing the lack of serological relationship between the new strains and *N. catarrhalis*

Antigen strain	Serum 528 (N. catarrhalis)						Serum 529 (N. catarrhalis)						Serum 248 (strain 155)						Serum 475 (strain 221)						Saline control	
Serum dilutions	50	100	200	400	800	1600	50	100	200	400	800	1600	50	100	200	400	800	1600	50	100	200	400	800	1600	-----	
1-128.....	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	0	0	0	2	2	2	0	0	0	0	0
2-129.....	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	3	3	1	0	0	0	0	0
3-155.....	0	0	0	0	0	0	0	0	0	0	0	0	4	4	3	3	0	0	2	2	0	0	0	0	0	0
4-156.....	0	0	0	0	0	0	0	0	0	0	0	0	4	4	3	2	0	0	2	2	1	0	0	0	0	0
5-157.....	0	0	0	0	0	0	0	0	0	0	0	0	2	2	1	0	0	0	2	2	2	0	0	0	0	0
6-159.....	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3	2	1	0	3	3	2	1	0	0	0	0
7-160.....	0	0	0	0	0	0	0	0	0	0	0	0	3	2	1	1	0	0	3	3	2	1	0	0	0	0
8-208.....	0	0	0	0	0	0	0	0	0	0	0	0	4	3	2	2	0	0	3	2	1	0	0	0	0	0
9-209.....	1	1	0	0	0	0	1	1	0	0	0	0	3	2	2	2	1	0	2	2	1	1	0	0	0	0
10-217.....	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3	2	1	0	2	2	2	0	0	0	0	0
11-218.....	0	0	0	0	0	0	0	0	0	0	0	0	3	2	1	1	0	0	3	3	2	1	0	0	0	0
12-219.....	0	0	0	0	0	0	0	0	0	0	0	0	3	2	1	0	0	0	2	2	0	0	0	0	0	0
13-221.....	1	1	1	0	0	0	0	0	0	0	0	0	2	2	1	0	0	0	3	2	2	0	0	0	0	0
14-223.....	0	0	0	0	0	0	0	0	0	0	0	0	3	2	2	2	1	0	3	3	3	2	1	0	0	0
15 N. catarrh.....	3	3	3	3	2	0	3	3	3	3	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0

0=No agglutination.

4=Complete agglutination.

These 14 strains do not seem to correspond with any species of the genus *Neisseria* in which, on morphological grounds, they so obviously belong. The suggestion of Wilson and Smith (8) that all members of this genus other than the meningococcus and the gonococcus be placed together in a species called *Neisseria pharyngis* does not offer a satisfactory disposition of these strains which have been isolated only from spinal fluid in epidemic meningitis.

The natural habitat of the members of the genus *Neisseria*, other than the gonococcus, is the naso-pharynx. Meningeal invasion by any of these other than the meningococcus is only of occasional occurrence. A total of a dozen or more reports of cases due to *N. catarrhalis* may be found in a careful search of the literature (9). A single case due to *N. subflava* was reported last year (10). Cases due to the gonococcus are not unknown; but none of these micro-organisms has been incriminated in an epidemic. The meningococcus has been considered the sole cause of epidemic cerebrospinal fever.

The occurrence of the type of organism reported in this paper in 14 out of 47 cases, in an epidemic in which all 4 of the usual types of meningococci were also involved, will undoubtedly cause many to feel that these 14 strains should also be considered as a variety of the meningococcus. There is much to be said for this point of view. Nevertheless, to consider this form a variety of *N. intracellularis* would alter the definition of a meningococcus and would lead to confusion and contradiction. Since it does not ferment dextrose and maltose, produces a pigment, and shows no serological

relation to the meningococcus group, it differs fundamentally in the characters recognized as specific for *N. intracellularis*. The only alternative appears to be to recognize a new species on the principle that it is much easier to suppress a synonym, if necessary, than to untangle confused descriptions based on erroneously determined species. This form is consequently designated as *Neisseria flavescens* n. sp., *flavescens* literally translated meaning "becoming a golden yellow."

SUMMARY

During an epidemic of cerebrospinal meningitis in which all 4 of the usual types of meningococci were involved, an apparently new form was isolated from the spinal fluid of 14 cases. In morphology this microorganism is indistinguishable from the other members of the genus *Neisseria*. It differs from the meningococcus in pigment production, lack of fermentative action, and in antigenic relationship. These 14 strains form a homogeneous group culturally, biochemically, and serologically. The name *Neisseria flavescens* n. sp., is proposed for this new form.

Since 30 per cent of the spinal fluid strains received from this locality belong to this group (comprising 9 per cent of the total number of strains received at the Hygienic Laboratory during 1928-29), since it is not represented in any of the therapeutic polyvalent serums now manufactured, and since the mortality in these cases was at least 30 per cent, the occurrence of *N. flavescens* in epidemic meningitis warrants special attention.

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SEAMEN WITH VENEREAL DISEASE IN THE PORT OF NEW YORK

A COOPERATIVE STUDY MADE BY THE AMERICAN SOCIAL HYGIENE ASSOCIATION, THE NEW YORK TUBERCULOSIS AND HEALTH ASSOCIATION, THE WELFARE COUNCIL OF NEW YORK CITY, AND THE UNITED STATES PUBLIC HEALTH SERVICE

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CHAPTER IV

PROVISION FOR TREATMENT

Since 1798, American merchant seamen have received treatment in the United States marine hospitals and at other relief stations originally established and maintained through direct contributions by seamen. In 1884 the Government ceased to collect funds from the seamen. The marine hospitals and other relief stations of the Public Health Service are now maintained by direct appropriations of Congress and represent the contribution of the Government to the maintenance of the American merchant marine and the welfare of its merchant seamen.

An American seaman (a seaman employed on a merchant vessel flying the American flag) is entitled to free treatment at any marine hospital or other relief station of the Public Health Service. He needs only to identify himself to the medical officer in charge by presenting a master's certificate² or other evidence of eligibility. A foreign seaman (a seaman on a vessel of foreign registry) is treated as a pay patient and must present a request for treatment from the master of his vessel or consul of his country.

UNITED STATES LAWS AND REGULATIONS

Treatment on shore for American seamen.—Under existing law there is ample authority for free treatment of American seamen suffering from injury or illness, venereal diseases included, at hospitals and other relief stations maintained by the Public Health Service. While this authority permits treatment of seamen at the expense of the Public Health Service in hospitals with which it has contracts, where such treatment is requested by the medical officer in charge at the station, it does not otherwise permit attention by private physicians or hospitals at the expense of the Government. Temporary relief, in cases of emergency, may be furnished at certain designated ports where there is no Public Health Service medical officer, at the request of a duly authorized customs officer. Under regulations promulgated by the Secretary of the Treasury, a seaman must meet certain require-

¹ The complete report will be issued later as a separate publication as "Reprint No. 1365."

² See Appendix

ments to be entitled to treatment by the Public Health Service. He must be employed on board, or have been employed within 60 days, "in the care, preservation, or navigation of any registered, enrolled, or licensed vessel of the United States, or in the service on board of those engaged in such care, preservation, or navigation," and he must have had previously at least 60 days' continuous service on such a vessel or vessels. The regulations further provide that no person employed on a vessel under five tons or on a canal boat engaged in the coasting trade shall for that reason be entitled to any benefit or relief from the service.

If a seaman does not change his occupation or retire from active service, he may be kept under treatment by the Public Health Service as long as necessary. But to be entitled to further treatment, after having received continuous treatment at an out-patient office for a period of two months, he must furnish a new certificate of service showing that he still is following his vocation of seaman, or has been prevented from resuming this occupation by reasons not under his control.

While only temporary relief is contemplated and admission to hospital is not intended to permit an indefinite residence for cause other than actual disease or injury, the Public Health Service has maintained a liberal policy with regard to hospitalization. With respect to venereal diseases in particular, it is believed that a far greater proportion of cases among seamen are given hospital treatment by the Public Health Service than is the case in private practice or in the practice of other hospitals and clinics. Occasionally the local hospital facilities of the Public Health Service are so taxed that it becomes necessary to give treatment to certain classes of venereal disease cases at an out-patient office, but whenever hospitalization is considered necessary some way is found to care for the disabled seamen, even if beneficiaries of the service must be sent to other institutions under contract.

Treatment at sea for American seamen.—A law has recently been passed providing that masters, mates, and pilots, in taking their first licenses, must undergo an examination to show ability to give first aid for various diseases. A ship's manual of sanitation, care and treatment, including venereal diseases, has been published by the Public Health Service.

While the Public Health Service may occasionally furnish emergency relief to a seaman on a ship in port, it is not authorized to furnish treatment on ships, except that seamen engaged in deep-sea fishing may be given emergency relief by medical officers on Coast Guard vessels.

It appears that the only statute relating to the furnishing of treatment by the owner of a vessel to seamen during a voyage is section

4569 of the Revised Statutes, which requires American vessels in foreign or intercoastal trade to carry a chest of medicines.³ But under common law there seems little doubt that seamen are entitled to "maintenance and cure" at the expense of the owner of the vessel if they are "injured or fall sick in the service of the ship" during a voyage. This has been so held by the United States Supreme Court.

Several decisions interpreting the common law have indicated that owners of vessels are not bound to furnish treatment to seamen for venereal diseases on the ground that such diseases were not acquired "in the service of the ship"; but a recent decision of the Comptroller General on this point holds—

The fact that an American seaman may be suffering from a venereal disease the result of his own vices or misconduct does not relieve the owners or operators of the vessel on which he last served of their obligation to furnish such maintenance and hospitalization as may be necessary in connection with or incident to his return to a port of the United States

While this decision has the effect of law until it is reversed by the courts or otherwise nullified, as far as expenditures by Government officials are concerned, it is not considered necessarily binding upon vessel owners in connection with their dealings with seamen. In other words, as an official of the Public Health Service states, "this means that the Comptroller's decision prohibits officers of the United States from disbursing United States funds for treatment of venereal diseases in connection with or incident to the return of a seaman to a port of the United States. But since this is only a decision and not a law, it is not binding on the shipping companies in so far as it states what they must do." It is not believed that the decision is likely to be questioned. The letter from the Comptroller General containing this decision has been reproduced in the Appendix.

A sick or destitute seaman signed off his vessel in a foreign port may be cared for by United States consular officers. A fund in the State Department is available for this purpose, but is applied in a very restricted manner, since the whole intention is to repatriate the man and not to provide treatment for him. The seaman is returned as rapidly as possible to the United States where the treatment outlined above is available for him.

Treatment for foreign seamen.—Although alien seamen with venereal disease are excluded from admission to the United States under the immigration laws, these seamen are permitted to land in this country temporarily for medical treatment or for their ultimate departure, removal, or deportation from the United States pursuant to regulations prescribed by the Secretary of Labor. Such treatment is, as a

³ The standardization of ships' medicine chests has been discussed by the International Labor Organization. It is not the intention that ships of different countries should have identical medicine chests on board but merely that there should be a common basic store of medicines.

rule, of an emergency nature and incomplete, since these seamen are in hospital only the few days that their ships are in port for unloading and loading. The steamship companies pay for this treatment and naturally they desire to repatriate their men as soon as possible.

The United States is not a party to the international agreement respecting facilities to be given to merchant seamen for the treatment of venereal disease. This agreement was signed at Brussels, December 1, 1924, and has been ratified by several nations. By it they undertake to maintain venereal-treatment centers in their principal ports free of charge to merchant seamen of all nationalities. In the United States, seamen from foreign vessels may legally be admitted to relief stations of the Public Health Service as pay patients, the consul or the ship's master becoming a surety for the funds which, when collected by the collector of customs, are turned into the United States Treasury. By the act of March 3, 1875, Congress fixed 25 cents as the charge to be made for the per diem cost of hospital care of foreign seamen, but authorized the Secretary of the Treasury to adjust the rate. At present it is \$3.80 per patient per day, or approximately the actual cost of treatment in marine hospitals. The cost of out-patient treatment for foreign seamen has been similarly fixed at \$1.

When an alien seaman is treated for a venereal disease at a Public Health Service relief station, it is the practice under the laws of some foreign countries to require the seaman to pay for the treatment if the disability is known to have been the result of his own misconduct.

Application of regulations to seamen studied.—The schedules indicated the source of payment for the hospital treatment being received by the 961 seamen studied. As the regulations have indicated, American citizens and others serving under the American flag are entitled to free treatment by the United States Government. Treatment given seamen employed on foreign ships is paid for by the steamship companies. Emergency treatment of alien seamen detained at Ellis Island Hospital by the immigration authorities because of venereal disease is also at the expense of the steamship companies.

TABLE 16.—*Financial provision for treatment*

Treatment provided by—	Number of beneficiaries
Total.....	961
United States Government.....	840
Steamship company.....	116
Foreign consulate.....	5

Nearly 90 per cent of the men were beneficiaries of the United States. The others were paid for in all but five instances by the steamship companies.

PROVISION FOR TREATMENT BY SHIPPING COMPANIES

Reference has been made to the survey, undertaken by the United States Public Health Service in connection with this study, to ascertain the venereal-disease control measures in the shipping industry at the port of New York. Not all the companies were interviewed, but an attempt was made to survey a sufficient number to give a fair cross-section of the practice of the industry as a whole. The information was obtained chiefly through personal interviews with officers of shipping companies. In a few instances the vessels were visited and medical officers and members of the crews were interviewed.

The activities of the shipping industry in New York against venereal disease, in addition to the examinations and inspections discussed at the beginning of Chapter III, may be included under (1) chemical prophylaxis and (2) treatment of infected individuals.

Chemical prophylaxis.—No uniformity was found in the application of chemical prophylaxis. Less than half of the companies surveyed had made any attempt to distribute prophylactic tubes among the men on the ships and few had provided even very simple prophylactic stations. The report states:

While prophylactic tubes are distributed on ships by some of the companies, it is believed that, with the exception of two or three lines, little is being done in an intensive way to encourage the use of chemical prophylaxis by the members of crews on American vessels. It is not believed that this method of prevention can be made effective unless an intensive effort is made, through the development of active interests on the part of masters and other ships' officers, to see that the men actually are urged to protect themselves after exposure.

Treatment of infected individuals.—It appears to be the practice on all ships carrying medical officers to furnish temporary treatment, free or otherwise, for cases of venereal disease developing at sea. Such ships are relatively few as compared with the total number of vessels operated out of New York, since ships carrying less than 50 passengers are not required to have a doctor and it is doubtful whether treatment given at sea plays any important part in the control of venereal disease among seamen generally. This means that the majority of men sailing on cargo boats and freighters must trust to the diagnosis of captain, boatswain, or chief steward. Of service here is the recent law which requires of masters, mates, and pilots first-aid knowledge of various diseases, as well as the ship's manual of treatment published by the United States Public Health Service.

On the other hand, it seems to be the general practice to hospitalize at foreign ports, cases of venereal disease discovered on voyages away from the United States. In some instances the company pays for the treatment and in others the cost is deducted from the seaman's wages. On two of the lines surveyed the ships' medical officers are authorized to charge seamen for treatment for venereal diseases at

sea at the rate of \$10 to \$12 a voyage. The high cost of the necessary drugs is undoubtedly a factor in these charges.

With reference to this custom the report reads:

The practice of permitting ships' surgeons to charge for treatment given at sea, which exists on some of the lines, is considered a matter of no little importance in connection with control of venereal diseases among the men. This practice causes the concealment of many cases which would seek treatment aboard ship if such treatment were furnished free. This lack of treatment in the early stage, particularly of syphilis, often decreases the probability of cure, and in the case of gonorrhea results in complications which cause unnecessary disability for the sailor.

While a Supreme Court interpretation of the common law has indicated in a broad way that seamen are entitled to "maintenance and cure" if they "fall sick in the service of the ship," it frequently has been held by other competent legal authority that to be entitled to medical relief at the expense of his employer the seaman must not have acquired his disease away from the ship and as a result of his own misconduct. It appears, therefore, that the companies are not legally bound to furnish free treatment for venereal disease, although many of them do so. On this point attention is called to the decision of the Comptroller General to which reference has already been made.⁴

In a general way it may be said that control measures against venereal disease appear to be receiving more direct attention by foreign companies operating out of New York than by American companies. This may in part be due to immigration requirements.

PROVISION FOR TREATMENT BY UNITED STATES GOVERNMENT

The United States Public Health Service, as already stated, maintains three hospitals in the Port of New York for the treatment of seamen. These are located at Ellis Island, at Stapleton (Staten Island), and at 67 Hudson Street (Manhattan).

Ellis Island Hospital.—The venereal disease section of Ellis Island Hospital at the time when this study was made, consisted of nine wards with a capacity of about 175. The patients in these wards were (1) members of the crews of vessels flying the American flag, some of whom were American citizens and others, aliens; (2) Coast Guardsmen; (3) alien seamen employed on vessels flying foreign flags, who were sent to the hospital by immigration officials; and (4) aliens detained at the request of the immigration authorities because of venereal infections.

Conditions at Ellis Island Hospital were the subject of comment in the annual report of the Surgeon General of the United States Public Health Service for the fiscal year 1928.⁵

⁴ See p. 852.

⁵ Annual report of the Surgeon General of the Public Health Service of the United States for the fiscal year 1928, p. 251.

During the winter months the wards devoted to acute cases were almost constantly filled, and on various occasions it was a problem to find beds for new arrivals. This hospital, designated several years ago to receive only the overflow patients from the marine hospital at Stapleton, which is kept filled at all times with merchant seamen, now treats more merchant seamen and other old-line beneficiaries than immigrants * * *. This, coupled with the fact that the tenure of occupancy at Ellis Island is temporary and uncertain, emphasizes the urgent need for new construction to enlarge the marine hospital at Stapleton.

The hospital buildings are in bad physical condition. Only emergency repairs have been made, and although * * * \$117,000 for hospital improvement [was voted in 1928], the medical officer in charge states that "a sum five times the amount of the present appropriation is needed to renovate the entire plant." He believes that unless the additional and necessary repairs are made, the hospital will not be habitable much longer.

The lack of outdoor recreational facilities for nurses and other employees, inadequate quarters for attendants, and the lack of any housekeeping facilities for married officers are detrimental to the operation of the hospital.

Stapleton Hospital.—The Stapleton Hospital, beautifully situated on Staten Island at the Narrows, had two wards reserved for venereal cases at the time of the study, each with 29 beds—a total of 58 beds for such cases in a 288-bed hospital.

The hospital accommodation was inadequate, for the Surgeon General's report stated further with reference to this hospital:

The need for a larger hospital is evidenced not only by the fact that nearly 1,782 merchant seamen were diverted to the marine hospital at Ellis Island, which merchant seamen are reluctant to enter, but during the past winter it was not an uncommon occurrence for patients applying for admission at Stapleton to be kept waiting in the office until beds could be made available for them by the discharge of other patients still in need of hospital care, but less so than the new arrivals. It has been repeatedly necessary to discharge patients, sometimes homeless, who should have remained in the hospital until fit for duty, to make room for new arrivals more acutely ill.⁶

The Treasury Department has recently authorized the expenditure of \$2,500,000 for new construction at the Stapleton Hospital. Petitions had been received from merchants and civic associations in Stapleton requesting that the institution be removed to Quarantine Station on the ground that it was arresting development in the nearby district, but the shipping interests in New York Harbor opposed a new site as being less convenient for sick and injured seamen.

Hudson Street Hospital.—Hudson Street Hospital, although fully equipped as a hospital in all matters except ward facilities, is operated solely as an out-patient service, with substations at the barge office, post-office building on Thirty-third Street, and the Seamen's Church Institute, 25 South Street. At this hospital, patients are treated whose condition is not serious enough to require hospitalization or who have originally been in the hospital and require follow-up attention.

⁶ Ibid., page 260.

The ideal toward which the physicians in charge are working is that the patient should take a 6-weeks' course of treatment for syphilis, then go to sea for his rest period of 10 weeks before reporting for a second course. This procedure should then be repeated until cure is effected. Such a plan is obviously dependent upon the continuous cooperation of the patient and upon his ability both to find work while on shore, or otherwise to maintain himself, and to find sea employment that fits into the plan. In a gratifying number of cases the goal has been reached.

Treatment cards.—Since much of the hospital care given seamen is incomplete, the Public Health Service has recently issued a "treatment card" for their use. This card provides space for diagnoses and a record of treatment received so that the sailor, in passing from port to port and from doctor to doctor, may continue treatment without loss of time. These cards are not yet in routine operation, at least in the port of New York. Their usefulness would be increased if on the back were printed a list of the marine hospitals in the United States with addresses, office hours, and other pertinent information. This should also be posted on all American boats. There have been instances of men in need of immediate hospital care reporting to Hudson Street Hospital. After waiting to see the admission officer they would learn that that particular hospital did not give bed care, would then have to return to their ship, or spend the night elsewhere, and make the trip to Stapleton Hospital the next day. It is important to have widely disseminated the information which would obviate such dangerous delays.

REFERRAL OF CASES AND THEIR TREATMENT

The schedules in this sample study contained items relating to the referral of the men to the hospital and their treatment both previous to and after admission to hospital.⁷

How referred to hospital.—The patients' replies as to how they were referred to hospital at the time of the study are summarized as follows:

TABLE 17.—*Referral to hospital*

Referred by—	Number
Total.....	961
Own initiative.....	332
Steamship lines.....	216
Immigration Department.....	102
Hospitals and other agencies.....	272
Individuals.....	14
No data.....	25

⁷ Much of this material was analyzed and tabulated by the Social Hygiene Committee of the New York

Type of hospital patient.—The patients were classified into in and out patients according to whether they were under treatment at Ellis Island and Stapleton Hospitals or, in the latter case, at the Hudson Street office. The in-patients were further grouped into two classes—those who at the time of the interview were confined to bed and those who then were ambulatory.

TABLE 18.—*Type of hospital patient*

Type	Number
Total.....	961
In patients.....	587
Ambulatory.....	384
Bed.....	5
Not specified.....	198
Out-patients.....	374

The out-patients were the less acute cases while the others had ordinarily been hospitalized not only for bed care but also for reasons relating to public safety.

Treatment previous to admission.—Table 19 shows the type of treatment the men reported receiving before admission to hospital at time of the study. It will be recalled that some of them were chronic cases of long standing and that one-half of them reported previous infections. Some 300 of the men reported having had two, three, four, or five of the types of treatment specified in the table.

TABLE 19.—*Treatment previous to admission to hospital*

Type of treatment	Number
Institution.....	397
Self-treatment.....	379
Private physician.....	213
Ship's physician.....	75
Drug store.....	66
Ship's officer.....	14
"Quack".....	5
No previous treatment.....	159
No data.....	33

From this it is clear that ships' physicians are playing a minor rôle in the care of venereal diseases, while the amount of "self-treatment," with its use of drug-store remedies, is far too large. Among the institutions in which previous treatment had been received, were hospitals and clinics in many other ports of the United States and in foreign countries as well.

Promptness with which treatment was sought.—Members of the medical and social service staffs at the hospitals are concerned about

the length of time that often elapses after the man is "signed off" his ship on the completion of the voyage before he reports to the hospital. It seems to be the practice with many not to report until they have spent the money received as wages for the last trip and are practically stranded. This leads to a train of grave consequences for the in-patients when later they are discharged from Stapleton or Ellis Island. After leaving the hospital without funds they are often obliged to "sign on" another ship immediately, although they may have been referred to Hudson Street for further treatment. For the out-patient hospital this delay in beginning treatment presents a peculiarly serious problem, since employment and maintenance have to be found if the patient is to receive the required care. The difficulties involved are considered later in this chapter.

Table 20 indicates the time the men were unemployed before beginning treatment.

TABLE 20.—*Time unemployed at admission to hospital*

Time unemployed	Number of patients		
	Total	Ellis Island and Stapleton Hospitals	Hudson Street Hospital
Total.....	961	587	374
None.....	407	297	110
Less than 1 week.....	217	124	93
1 week and less than 1 month.....	162	86	76
1 month.....	79	43	36
2 months.....	24	14	10
3 months.....	6	5	1
4 months.....	4	3	1
5 months.....	1	1	
6 months.....	2	2	
7 months.....	2	1	1
No data.....	57	11	46

More than one-quarter of the patients, it will be noted, had been unemployed more than a week and an eighth more than a month before they reported for treatment.

Length of time under care.—Something of the amount of attention and service devoted to these cases may be gleaned from examining the length of time they were under care. In 813 instances a record of the date of the patient's discharge was entered on the schedule. The remainder were still open at the close of the study. The number of days under care for all the discharged patients and for patients still under care at the close of the study is given in Table 21.

TABLE 21.—*Time under care*

Time under care	For discharged patients ¹	For patients still under care
Total.....	813	143
Less than 1 day.....	18	3
1 day and less than 1 week.....	50	8
1 week and less than 2 weeks.....	70	5
2 weeks to a month.....	182	27
1 to 2 months.....	208	17
2 to 3 months.....	116	10
3 to 4 months.....	32	13
4 to 6 months.....	33	20
6 to 8 months.....	4	11
Over 8 months.....	2	3
Not specified.....	38	21

¹ Including 1 who died while under treatment.

It will be recalled that more than three-fifths of these men were in-patients, practically all ambulatory, while less than two-fifths were clinic patients who might have been aiding in their own support. The period of care for alien seamen is usually a brief one, and as a rule they are returned to their own countries on the first homeward-bound ship. In spite of these circumstances, at least 529 of those discharged and those still under treatment had received care for over one month, and at least 118 for over three months.

Status of all cases at close of study.—Table 22 gives the status of the 961 cases at the close of the study as this was recorded on the schedules.

TABLE 22.—*Status of cases at close of study*

Status	Number of patients
Total.....	961
Discharged.....	812
Treatment complete.....	109
Treatment incomplete.....	477
Interval.....	155
Stage not specified.....	71
Died while under care.....	1
Still under care.....	148

"Treatment complete" indicated that the patient had received all the treatment that the doctor then believed necessary; "treatment incomplete," that the patient gave up his treatment or was finally discharged for some reason before he had received all the treatment then considered necessary; and "interval," that the patient was to rest for a period and then return for further treatment.

Among the 812 discharged patients were 400 who had been transferred to other hospitals or to the out-patient department at Hudson

Street. It was recorded that 158 others had returned to employment—140 on sea and 18 on land. A point to be discussed later in the chapter relates to the employment difficulties of these men.

Condition on discharge.—The outcome of the care received is shown in Table 23, which gives the condition of the patients on discharge.

TABLE 23.—*Condition on discharge*

Condition	Number of patients
Total.....	812
Arrested.....	160
Improved.....	391
Not improved.....	109
Not specified.....	152

"Arrested" means that the disease had become latent and for practical purposes might be regarded as nonexistent at the time of discharge. "Improved" indicates a less degree of progress.

A patient may be discharged from hospital on request even if in an infectious state. The schedules indicated that 128 of the discharged patients were still infectious and 364 noninfectious.

PROVISION FOR TREATMENT BY VENEREAL-DISEASE CLINICS

An earlier section of this report ⁸ refers to the number of seamen who had secured treatment at the clinics for venereal disease which were locally maintained. The following pages indicate something as to the number of these institutions, their location, and conditions under which treatment is provided.

In addition to the clinic maintained at the United States Marine Hospital at Hudson Street, the 1929 Directory of Social Agencies lists 49 institutions in the city of New York with venereal disease clinics for male patients. Only 20 of these clinics, however, according to the survey made in connection with this study by the associated outpatient clinics committee of the New York Tuberculosis and Health Association, had treated any seamen for either gonorrhea or syphilis during the calendar year 1928.

All these clinics stated that venereally diseased seamen of the mercantile marine, both American and foreign, were accepted if they met the general requirements of the clinic as to residence, fees, etc.

At least four institutions of the group reporting any considerable number of cases stated that no fee was charged for treatment. Admission fees, which ranged from 20 cents to \$1.50 in the nominal-fee and pay clinics, might be waived in cases of indigent seamen. The social service department, where one was connected with the clinic, investigated ability to pay.

⁸ See PUBLIC HEALTH REPORTS for Apr. 11, 1930, p. 794.

The cost of medicines used in all the clinics varied. For arsphenamine the range was from no charge to \$5; and for mercury, from no charge to \$3. The range for a Wassermann was from no charge to \$2.

Nearly all these clinics prefer not to accept seamen as out-patients, because they have found that, as a rule, seamen become delinquent after a few visits and fail to follow out the entire course of treatment suggested by the doctors. In the survey referred to above, two institutions made a careful check of their records to ascertain how many of their patients returned for treatment. At one institution it was found that of 27 seamen registered in the syphilis clinic, 7 made from 2 to 10 visits; 5 made more than 10. These 5 patients received more than the first series of treatments. In another clinic, of 38 seamen registered for syphilis, 19 returned; of the 28 registered for gonorrhea, 16 returned. This record showed that just half—47 out of the 93 registered at the two institutions—returned for treatment. The same proportion also held in other clinics, according to the opinion ventured by their personnel.

In the majority of cases the patients were referred to the clinics, according to the findings of the survey, by other patients and friends. Consuls had referred patients to three institutions and were assuming financial responsibility for them. In only one institution was there record that steamship companies had referred seamen and paid for their treatment. Four clinics referred coastwise seamen to other ports for treatment.

Facilities for hospitalization were available at 13 of the clinics, and 15 others, with no facilities for hospitalization for venereal diseases, referred their patients to Bellevue Hospital, City Hospital, Metropolitan Hospital, or a United States marine hospital. The others failed to state what arrangements were made for hospitalization.

Only four clinics reported that patients had been referred for hospitalization during 1928. The number of referrals was 82. This included 11 at one institution where there was no out-patient service for venereal diseases and patients were admitted directly to the hospital for treatment. The cost of hospitalization in hospitals where treatment was not free varied from \$2.50 to \$5 a day.

In only a few instances was any record given to the patient as to the treatment he had received—dates and results of Wassermann tests, etc. The general policy seemed to be that no such record was given unless the patient or an interested agency requested it.

Medication was generally not given to patients for self-treatment at sea. The six institutions which did give medication for this purpose reported it was "only in acute cases of gonorrhea." "Frequently potassium iodide is given," one clinic stated, "and occasionally bismuth, where it is not possible to get medication on the boats and the patient seems to be intelligent."

With regard to the use of locally supported medical institutions, a distinction is usually drawn between those which are supported by municipal funds and those supported by funds privately raised. Among the seamen are some who are bona fide residents of New York City. These are eligible to receive any services provided for the residents of the city. Besides these there are United States citizens who are nonresidents of New York City, and there are aliens. It is questionable whether the provision of treatment for these latter classes is a local responsibility. The privately supported agencies are free to serve them. The United States Government has assumed responsibility for seamen on ships of American registry, both citizens and aliens. The management of the situation in its local, national, and even international aspects is a subject which might be explored further.

PROVISION FOR OUT-PATIENTS DURING TREATMENT

The average number of new patients who register at Hudson Street Hospital each month for out-patient treatment for the venereal diseases is about 450. For a considerable portion of these men the two great needs are land employment to provide for living expenses and maintenance until it is secured. Men in hospital for treatment who have been recently discharged from their ships with pay often spend all of it at the hospital canteen and then report for out-patient treatment practically penniless. Others soon exhaust their slender savings for living expenses while in attendance at the clinic. Sometimes when a man or boy has family or relatives in port he will not go to them for help because he is unwilling that they should know of his condition.

Sailors are proverbially improvident and their comraderie makes it easy to go a long way on the borrowing basis; but in order to avail themselves of the free treatment provided by the Government, many of the patients must be given temporary relief in the form of lodging and meals, and other emergency needs must be met until they have secured employment and become self-sustaining. The hospital service section at the Hudson Street clinic, which serves the seamen in these regards as far as its one worker finds it possible, reports that it is difficult to secure such temporary relief. The relief-giving agencies of the city maintain that sailors are the responsibility of the seamen's agencies and the seamen's agencies reply that while at times they do give relief, they were not established for this purpose and are not justified in diverting funds and attention from their proper activities. Some of the seamen's agencies have expressed the opinion that a central relief agency for seamen should be set up which could deal with the men on a case-work basis rather than on a basis of ordinary relief-giving.

Maintenance.—Only a limited number of seamen's agencies provide sleeping accommodation in their buildings, and only two or three of these at most could be counted upon to respond to appeals from the hospital service section on behalf of men reporting for treatment without money or work. Considerable telephoning was involved in each instance and the burden of this relief giving fell heaviest on one agency.

Frank discussion of the situation at meetings of the seamen's section of the Welfare Council resulted in a plan, to which all the agencies concerned agreed in principle, by which quotas would be set for the seamen's agencies, and the social service worker at Hudson Street could call upon them for sleeping accommodation for that number of men each day. The two agencies which assumed quotas were the Seamen's Church Institute and the Sailors' Home and Institute of the American Seamen's Friend Society. The plan was in successful operation from March until the middle of May, 1929, although the desired provision for 20 was not attained. This arrangement also enabled the social service worker to concentrate upon more constructive aspects of the social and physical rehabilitation of out-patients; but in May the Seamen's Church Institute found it necessary to revert to the former basis of caring for men upon request.

Hudson Street Hospital has a social service auxiliary, a volunteer committee seriously interested in the social service work at the hospital and its development.⁹ The committee has made available a relief fund to provide meal tickets, carfare, and other incidental expenses, outright or by loan according to circumstances.

Employment.—Placing these men in suitable shore jobs presents many obstacles, although evening clinics are provided so that reporting for treatment need not interfere with work. The hospital service section itself is able to place some men directly or through an employment bureau and others find their own jobs, often of a type detrimental to their own or the public health, as, for example, work in restaurants; but a large number go back to sea while still in need of treatment. The Seamen's Service Conference in 1925 appointed a special committee to consider temporary employment of venereally diseased patients. One of the physicians at Hudson Street Hospital reported to this committee that in one month 365 men in need of treatment had shipped out because of failure to find employment on land to maintain themselves for the period required.

Temporary work only is needed, since the patient must ordinarily return to sea within 60 days if he is to retain his status as seaman, and so he joins the city's floating population of casual workers. Certain jobs are closed to the man under treatment—those in hospitals, hotels, restaurants, and factories where food or candy is handled—because medical certificates are required for such employ-

⁹ The committee has met the standards set up by the American Association of Hospital Social Workers and is a corporate member of the association.

ment; but, as indicated above, the regulations are not always enforced. Some seamen who have never worked on shore are very difficult to place. The popular view that seamen are not dependable also militates against their suitable placement.

As the men are physically below par they can not undertake burdensome tasks. When they overtax themselves, many break down and have to cease work altogether. Some require light work because they are weakened by the periods of fasting incidental to their treatment.

The hospital service section has developed a clientele of employers through whom it places men in jobs as porters, watchmen, elevator operators, ushers, and "stand-by" workers during the day on ships tied up in the harbor. There is not a large number of such jobs, and fee-charging employment agencies are used and fees for the jobs are advanced by the Social Service Auxiliary of the hospital. Men sent to these agencies are carefully instructed as to the kind of work they should do.

Table 24 indicates for the 110 Hudson Street patients for whom information was available on the schedules, the number employed while under treatment, how this employment was secured, and its type. There were 53 who were not employed, and of the remainder many undoubtedly had secured work but failed to report that fact. As in most occupational classifications, the terms are often overlapping and do not indicate clearly the work undertaken, but the table will give some understanding of the kind of employment the men secured.

TABLE 24.—*Employment while under treatment*

Type of work	How secured			
	Total	Hospital	Employment bureau	Own initiative
Total.....	110	17	25	68
Not specified.....	35	2	9	24
Odd jobs.....	16	5	2	9
Harbor service.....	9			9
Porter.....	0	3	2	1
Watchman.....	0	1	1	4
Elevator operator.....	5	1	1	3
Laborer.....	5		1	4
Factory hand.....	3	1	1	1
Messenger.....	3	1	1	1
Painter.....	3	1		2
Fireman.....	2		2	
Bartender.....	1		1	
Bricklayer.....	1			1
Carpenter.....	1			1
Check room manager.....	1		1	
Employment scout.....	1			1
Furrier.....	1			1
Janitor.....	1			1
Lather.....	1		1	
Machinist.....	1			1
Machinist's helper.....	1			1
Mechanic.....	1	1		
Nurseryman.....	1			1
Radio assembler.....	1		1	
Stenographer.....	1		1	
Supervisor on interior decorations of buildings.....	1			1
Waiter.....	1			1
Window cleaner.....	1	1		

In times of more or less serious unemployment, when permanent residents of New York are searching in vain for jobs, it becomes impossible to find short-time employment for these seamen. Many of them then become discouraged and "sign on" again with treatment incomplete.

The Employment Center for the Handicapped, set up in 1927 by the amalgamation of four agencies for the placement of handicapped workers, continued the practice it had inherited of accepting for placement seamen under treatment for venereal disease. It understood the problems involved and came to be regarded as a valuable resource, but after a time it found that it was overburdened with the number of out-patients registered from Hudson Street. It finally decided, and the decision was regarded as justifiable by the seamen's agencies concerned, that it would no longer accept syphilitic cases for placement in short-time jobs but would continue to accept gonorrheal cases, since the term of treatment for the latter was often of several months' duration. Some of these men may have lost their status as seamen in continuing treatment beyond 60 days.

The "selling" of handicapped people to employers is a slow and costly undertaking, and employees who do not remain on their jobs jeopardize the whole work of the placement organization. An employer who has been educated into setting aside jobs for handicapped men does not understand why an apparently able-bodied man should be sent as an applicant. The Center had faced these problems and also realized that designating seamen as "handicapped" injured their chances of employment, because some employers would not consider them if they knew or suspected the nature of the handicap. The question arose also as to whether the men presented a real physical handicap in that they were not permanently incapacitated and whether after all, preference should not be given, when there were not enough jobs, to the more seriously handicapped applicants.

Sheltered Workshop: The project for a convalescent or sheltered workshop for the seamen who can not be absorbed into industry is under discussion by committees from the seamen's and employment sections of the Welfare Council. While the sheltered workshop is costly to operate, the expense would probably be less than that involved in relief as now granted. And, in addition, an opportunity for the patients to do some special work in which they were interested with the consequent relief from worry as to means of subsistence, would have its own curative effect.

Cooperation between hospital social service departments and other seamen's agencies.—Early in 1929 a decision was reached by some of the seamen's agencies that the wisest policy was to centralize all relief giving around the marine hospital—that is, to give relief on the basis of physical disability. This necessitated a definite plan of

cooperation between the social service departments of these hospitals and the other seamen's agencies. The proposed relationship was discussed at meetings of the seamen's section, and in February, 1929, a committee was appointed to make recommendations. The report of the committee was submitted in March and adopted, but the plan is not yet in operation. It provided, in part, that no seaman should leave Ellis Island or Stapleton hospitals without his financial condition having first been informally ascertained and a referral slip for presentation to a seamen's agency given him if in need of relief. A system of referral between agencies and hospitals was also suggested.

Convalescent care.—Provision for convalescent care is greatly needed. The United States Public Health Service is aware that the marine hospitals at present lack such facilities, for the 1928 report of the Surgeon General, to which reference has been made,¹⁰ stated with regard to Stapleton Hospital that it was "repeatedly necessary to discharge patients, sometimes homeless, who should have remained in the hospital until fit for duty, to make room for new arrivals more acutely ill." A similar situation is developing at Ellis Island. Others not sick enough to be in hospital are yet too sick to return to work. While the enlargement of the hospital at Stapleton undoubtedly will reduce the amount of premature discharging, it is ordinarily uneconomical to use hospital beds for convalescent patients.

Some of the seamen's agencies have complained that they are being forced to provide convalescent care when seamen come to them too weakened in health to work and without funds. Many are said to be sent from Stapleton Hospital to the Seamen's Church Institute, where they are allowed accommodation without charge for a few days. Other agencies also give lodging and meals to men in need of convalescent care.

While resources for the care of convalescent patients in New York are substantial, it is true that this class of patient is not eligible to enter many of these institutions. Some convalescent homes have met the need in part by caring for convalescent seamen whose venereal condition has cleared up but who have other difficulties remaining, such as anemia or heart condition. Certain agencies have been able to provide clothing and transportation for needy seamen being sent to these homes for convalescent care.

The schedules brought to light two further aspects of this question. First, chronic cases are sometimes retained in the hospital when further medical care is of no avail, and they should be transferred elsewhere, perhaps to Sailors' Snug Harbor or some other institution. The case of a man of 56 may be cited as an illustration. This patient was treated for two and a half months for his condition of blindness (tertiary syphilis) and discharged as incurable. After a month's

¹⁰ See p. 856.

absence he returned, reported his wife was too old and feeble to give him any home care, and was readmitted. The doctor in charge stated the case was hopeless and beyond medical aid. At the close of the study, five months later, the man was still in the hospital. At Ellis Island Hospital considerable progress has been made in transferring chronic cases elsewhere.

The chaplain's department at the Staten Island Hospital evidently was unable to help the seamen who were discharged in a penniless condition or failed to realize the situation revealed by many of these records. The following quotations from a few of them show the need:

"Without even car fare to New York City from Staten Island, no home and no employment"; "absolutely without funds or employment"; "destitute, no clothing, no work"; "no work, no funds"; "without work, funds, or home"; "without funds, not even car fare, and no employment"; "no home, no money, not sufficient clothing to keep warm"; "discharged to continue treatment at No. 70 (16 years old), not a cent in his pocket and no home."

The necessity for the provision of convalescent care as a link in the chain of effective treatment of the sick is everywhere recognized. Especially is it essential for patients without homes or families. Without it, there is often a loss of the investment already made in hospital treatment.

The logic which lies back of the demand for resources for convalescent care grows out of two circumstances: First, it is wasteful to give a man an expensive course of treatment if it just falls short of setting him back firmly on his own feet and he is turned out to drift for himself at a critical and uncertain period in his physical and mental rehabilitation; second, it is wasteful to prolong the stay of a patient in the hospital beyond the time when he needs active hospital care.

SEAMEN'S COMMENTS

Suggestions made by the seamen as to treatment mainly concerned provision for prophylaxis. The statement of a British sailor that if free prophylactic treatment were provided for sailors by the ship's authorities, he and other members of the crew would take advantage of it, was confirmed by several. On the other hand, different seamen who had served in the Navy regretted that the merchant marine, unlike the Navy, could not require men to take treatment and thought that very few would voluntarily seek it. Fewer suggested that prophylactic treatment after shore leave should be compulsory than thought seamen would welcome facilities for such treatment under competent instruction.

Complaint was made that after an infection appeared there was no medical treatment available; even though a medicine chest was aboard, there was no one to tell what medicine to use or how. In-

stances were given of men who had applied to officers for remedies but found none to be available and so throughout the voyage had only such treatment as members of the crew suggested.

The custom of fee charging by the ship's doctor was referred to in several cases. Perhaps this was largely due to the drugs employed; but treatment that had been begun was soon discontinued because of the expense involved.

CHAPTER V

SOCIAL FACTORS IN THE PROBLEM

In an earlier section reference was made to the necessity of understanding the social characteristics of these seamen if proper steps were to be taken to protect their families and other members of the community from the spread of the venereal diseases through them. In that section, their ages, marital condition, and citizenship status were reviewed. It is now proposed to supplement those data with other information on their educational background, employment, use of leisure time on shipboard and on shore leave, and knowledge of the diseases before infection.

EDUCATIONAL STATUS

Schooling.—The school-leaving age and the grade then attained, as reported by the seamen studied, have been tabulated in Tables 25 and 26.

TABLE 25.—*School-leaving age*

Age at leaving school	Number
Total.....	961
No schooling.....	26
Under 10.....	17
10 to 14.....	424
15.....	158
16.....	139
17.....	74
18.....	31
19.....	19
20 and over.....	47
No data.....	26

Table 25 shows that the men for whom data were given fall into two equal groups—those who had received no schooling or had attended only to 14 years of age (467) and those whose schooling continued after they were 14 (468). The 26 with no schooling included 18 negroes, five white men, two Chinese, and one American Indian. Four of the negroes and two of the white men were born in the United States; 21 of the group were single. Despite the fact of

no schooling, five were able to read one language and three could read, write, and speak their native language and had a reading knowledge of another.

The school grade attained or completed is indicated in Table 26.

TABLE 26.—*Grade attained on leaving school*

Grade	Number
Total.....	961
No schooling.....	26
Third grade.....	39
Fourth and fifth grades.....	94
Sixth and seventh grades.....	222
Eighth grade.....	270
1 year of high school.....	46
2 years of high school.....	57
3 years of high school.....	22
4 years of high school.....	63
1 or more years of college.....	25
No data.....	97

Of the 838 who gave information as to their progress in school, 213 had instruction in high school or college. Among the 625 who did not begin high school, 270 reported that they had reached or completed the eighth grade. In the whole group of 961 men, therefore, 40 per cent had received either no schooling or less than an eighth-grade education; 28 per cent had left school with the eighth grade, and 22 per cent had some high-school or college work.

Literacy.—Table 27 summarizes the data available on the men's reading, writing, and speaking knowledge of English and languages other than English and relates these data to the racial groups.

TABLE 27.—*Literacy, by race and principal language*

Knowledge of languages	Race			
	Total	White	Negro	Other
Total.....	961	784	147	30
Reads, writes, and speaks.....	931	775	128	28
English as principal language.....	587	502	76	9
No other language.....	475	407	63	5
Some knowledge of one or more others.....	112	95	13	4
Other than English as principal language.....	344	273	52	19
No other language.....	31	21	10	—
Some knowledge of one or more others, but no English.....	3	2	1	—
Some knowledge of one or more others, including English.....	310	250	41	19
Speaks, but can not read or write.....	28	8	18	2
English as principal language.....	14	7	7	—
No other language.....	7	2	5	—
Some speaking knowledge of one or more others.....	7	5	2	—
Other than English as principal language.....	14	1	11	2
No other language.....	10	1	7	2
Some speaking knowledge of one or more others, but no English.....	3	—	3	—
Some speaking knowledge of one or more others, including English.....	1	—	1	—
No data.....	2	1	1	—

Thus it appears that written information could be read in English by 897 of the 961 men. Foreign languages would be required by 34

and oral instruction by 28. In 13 of these latter cases it would be necessary to give this information in a language other than English.

Some knowledge of three or more languages was claimed by 77 of the men—43, two other languages; 28, three others; and 6, four others.

Beside the intensely practical aspect of literacy as a condition in the education of these men on the character of their disease and its social significance, it is also of fundamental importance in the whole organization of their recreational and leisure-time interests. The man who can not even read the newspaper must be peculiarly exposed to temptation to spend his leisure in other ways.

Seamen afloat present a unique opportunity in adult education. Consideration might well be given to the provision of educational facilities for men at sea in somewhat the same way as the Frontier College of Canada has functioned for the workers in the remote lumber and construction camps of the Dominion.¹¹

WORK AND WAGES

The appeal of the sea when once "in the blood" is hard to resist. Occasionally a sailor may try employment on shore, but sooner or later he is likely to return to sea. Seamen have been the victims of harsh and unjust conditions of work, and despite the improvement that has taken place, their life is not an easy one.

The seamen's act of 1915, frequently referred to as the La Follette law, was the culmination of more than 100 years of effort to secure legislation to better conditions of employment at sea. It is entitled "An act to promote the welfare of American seamen in the merchant marine of the United States."

Shipping offices.—Among the evils to which seamen were long subject was the payment of excessive charges to "crimps," or keepers of sailors' lodging houses, and others acting as agents for the supplying of ships' crews. The disgraceful conditions which formerly obtained with reference to the shipping of seamen is described in the following quotation from an address delivered in 1899 by the Rev. A. R. Mansfield (who at that time was just entering upon his long period of work with the organization now known as the Seamen's Church Institute of New York) and printed in the *Sailors' Magazine* for December, 1899:

Only those who are in close touch with shipping interests, or who are well informed, know what tyranny exists. * * * When a ship arrives, has been made fast to the wharf, or anchored down the bay, the runners for those worst of men, the boarding-house masters, board her, in some cases with the owners' or agents' permission, and demand the sailor to tell where he intends to board, and with bottles of rum induce him, by misrepresentation, by flattery, by threats, they try to secure him, and if these fail, and a ready and satisfactory answer is

¹¹ The bunkhouse man—a study of work and play in the camps of Canada, 1903-1914. By Edmund W. Bradwin. New York. Columbia University Press, 1928.

not given, I know for a fact in many cases he receives an unexpected blow, which nearly or altogether stuns him.

Too strong language can not be used to describe and condemn most of these sailor houses and resorts. The sailor's stay in port may be a week, a month, or longer, according to the amount of wages due him, but his treatment will be the same as long as his money lasts, and when it has gone he will as surely be cast adrift.

You know the old story, how the boarding-house keeper makes a trifling advance of money, and what is worse, of credit, when the sailor lands because a number of days elapse before the shipowners pay off their crews, and "Jack," who, because he has been drunk and stupid, does not know what has occurred, when paid off is presented with a heavy bill for money advanced. If the bill represents a larger amount than the wages, the sailor is shipped off at once, an allotment note is given to the boarding-house keeper (which system, by the way, has been the cause of the greatest abuses—the one great cause of the deterioration of seamen), who declares the sum is owing him for board and clothing.

The Seamen's Christian Association, in its 1928 annual report, records a similar story:

Under former working conditions the seaman landed in port in debt; had to go to a credit lodging house; was kept there until he had run up a big enough debt to cover all that he could earn on the next voyage when he was taken by the boarding-house keeper as a mere chattel and delivered to the captain of the outgoing ship, who cashed (at a substantial discount) the promissory note of the poor wretch for all that he was going to earn during the coming voyage. Of course, he landed in the next port again penniless and the same process was repeated until the end of his life. He was never able to check or audit the accounts, and it is said that he was usually charged for items never incurred.

The seamen's welfare agencies in the port helped in the fight to abolish this custom of shipping seamen. No seaman may now be charged a fee for a job on seaboard. The seamen's act makes it unlawful to receive or dispose of seamen's wages in any way prior to their being earned; but the facilities in the port of New York for securing jobs at sea are unorganized. Steamship companies, fee-charging employment agencies (fees paid by the steamship companies), seamen's unions, and philanthropic agencies for seamen all place men on shipboard. Some steamship companies maintain their own shipping bureaus and so bear the cost of securing crews; others make use of fee-charging employment offices or the eight offices maintained by the philanthropic agencies. The companies pay these agencies for this service directly or give donations for their work.

The employment bureaus maintained by the seamen's philanthropic agencies provide land employment as well. This work presents difficulties that have been described in the section on employment problems of men under hospital treatment.¹²

Even if the law is strictly observed, and there is much hearsay evidence that sailors often find it advantageous to tip the shipping

¹² See pp. 864 and 865.

agent, the unemployed sailor may still be under the necessity of visiting dozens of employment offices before he secures a berth.

The task of introducing some system into this chaotic field of employment might well be studied by the employment committee recently appointed by the State commissioner of labor and under whose auspices a study is being made of the public employment facilities in New York City maintained by the State department of labor.

If ever the United States Employment Service should be established on an efficient basis, consideration might well be given to setting up on a national basis a division for seamen which should have regard for their peculiar employment problems. In this connection it should be recalled that the second International Labor Conference, held at Genoa in 1920, discussed "the provision of facilities for finding employment for seamen." A draft convention was adopted providing that the business of finding employment for seamen should not be carried on as a commercial enterprise for pecuniary gain, but that free public employment offices should be provided, either jointly by representative associations of shipowners and seamen under the control of a central authority, or, in the absence of such joint action, by the State itself. By January, 1929, this convention had been ratified by 16 members of the International Labor Organization in addition to action by separate States or Provinces of federal countries.

Articles of agreement.—At the beginning of a voyage articles of agreement are signed. These specify wages, destination of the vessel, and other particulars, and constitute the contract between the sailor and the ship's master. If the ship is sailing to a foreign port or to a United States port on the Pacific coast, the articles must be signed before a shipping commissioner, but if the vessel is "engaged in the coastwise trade, or the trade between the United States and the Dominion of Canada, or Newfoundland, or the West Indies, or the Republic of Mexico," this procedure is optional, at the request of the master or owner.

The New York Legal Aid Society, as the result of cases before its seamen's branch, has recommended legislation to make it compulsory that all shipping articles be signed before a shipping commissioner. The attorney in chief of the society, in his annual report for 1927, wrote:

I can not emphasize too strongly my unchangeable opinion that all seamen should sign articles before a shipping commissioner. From my observations of many years I am able to bear witness that section 4520 of the Revised Statutes of the United States, which dispenses with the shipping commissioner both on signing on and paying off, works unnecessary and inexcusable hardships on the men. As it is now constituted, the law, in such cases, makes the captain the king of all he surveys. He prepares the articles, without any supervision on the part of any disinterested agency, he prefers charges against members of his crew, hears the cases, determines the facts, and passes judgment. In the ordinary course of

events he logs the alleged offender and nobody checks up on him. Incidentally all loggings revert to the companies.

I would suggest that the law provide the following: (1) All articles should be signed before a shipping commissioner; (2) the shipping commissioner should supervise all pay offs; (3) all disputes relative to loggings may, at the option of the parties, be referred to the shipping commissioner for decision; (4) all fines and forfeitures in pay, less the costs of hiring substitutes, should be turned over to the United States shipping commissioner to be disposed of as are unclaimed deserters' wages under the present law.¹³

The 1928 report also urged legislation in this regard.

The possibility of drafting an international code of law for the regulation of conditions on board ship, and particularly the relationships between seamen and their employers, was discussed at the first maritime session of the International Labor Organization in 1920 and has been prominently before it since. The commission set up to study the question drew attention in its report to the fact that in most countries a systematic codification of seamen's law has not yet been undertaken; but, because "seamen form to a large extent an international community," it considered a common international code desirable. The 1921 conference adopted the commission's proposal that each member of the organization should as a first step "undertake the embodiment in a seamen's code of all its laws and regulations relating to seamen in their activities as such." The International Labor Office was requested to make, with the least possible delay, the investigations necessary for establishing such a code and has issued a 900-page volume on "Seamen's Articles of Agreement." This volume contains a collection of laws and regulations relating to the engagement, discharge, repatriation, and discipline of seamen in various countries, and the legislation of 40 different countries, including the United States, has been arranged in such a way as to bring out the points common to any of them and the differences which may exist between them. At the 1926 International Labor Conference a draft convention on the subject was adopted. By January, 1929, four members of the organization had incorporated it in their legislation.

A bill for the codification of the existing navigation laws of the United States was introduced into the Senate in November, 1926. It was not considered at that session, although the Committee on Commerce reported unanimously in favor of its adoption. Since then the Shipping Board has published an extensive list of suggested amendments, but these have been strongly criticized by the International Seamen's Union. The bill has not yet been enacted into law.

Discharge.—When a seaman completes a foreign or intercoastal voyage he must be discharged and paid off before a shipping commissioner. Discharge before a commissioner is optional at the

¹³ Annual report of the Legal Aid Society for the year 1927, pp. 37-38.

conclusion of other voyages under the same conditions as for the signing of articles of agreement. The master gives the seaman a certificate of discharge, which specifies the name of the vessel, nature and duration of the voyage, capacity on board, and time and place of discharge, and gives as well a report on "conduct, character, and qualifications," or the master may state that he declines to give a report upon any or all of such particulars of conduct.

Seamen encounter many difficulties because they have not retained their discharges.¹⁴ These are necessary, for example, to prove eligibility for free treatment by the Public Health Service, for admission to Sailors' Snug Harbor, and for naturalization as a seaman.

It has been urged that discharges be issued in book form to constitute a "continuous discharge book." A few companies do this. Objection has been made by seamen on the ground that the report on character forms part of the discharge. In no other line of work, they say, do records of a man's experience and of his former employers' estimates of his character form part of a permanent record of employment that is brought to the attention of every prospective employer. Such a record, they assert, often brings to his attention unfavorable incidents of many years previous that may have been completely lived down and further may also involve the personal whims and prejudices of former employers.

With regard to this character record, the draft convention concerning seamen's articles of agreement, which was adopted by the 1926 International Labor Conference, stipulates that any document containing a record of a seamen's employment on board a vessel "shall contain no statement as to the quality of his work."

It would seem that provision might well be made for the adoption of the continuous discharge book containing records "limited to matters of fact and not of opinion."

Occupation on ship.—When on shipboard seamen are required to do a certain amount of work or to stand their watches. There is time off for rest and recreation and then there is a watch again. The work varies from that which needs little more than physical strength to occupations demanding highly trained and professional men. Nautical schools maintained by four states—Massachusetts, New York, Pennsylvania, and Texas—train young Americans for service in the merchant marine, and several shipping companies have cadet corps to train young men for ships' officers.

The men in this study were grouped, according to employment on ship, as licensed officers, members of the deck, engine, or steward's departments, and others, the latter being a miscellaneous group com-

¹⁴ A nationally organized employment service for seamen would doubtless have as one of its functions the maintenance of individual records, copies of which could be supplied on request.

posed, for example, of musicians or those engaged in personal service on the passenger liners.

TABLE 28.—*Occupation on ship*

Occupation	Number
Total.....	961
Deck department.....	357
Engine department.....	313
Steward's department.....	273
Other.....	10
Licensed officer.....	8

The large number in the steward's department attracts attention in view of the interstate quarantine regulations previously referred to,¹⁵ providing that on vessels in operation in interstate traffic no person shall be employed as a cook or waiter or otherwise in the serving of food who is known or suspected to have any communicable disease. It seems likely that some of these men were so employed.

Previous occupation.—The wide range of occupations in which the men had been engaged previous to discharge at end of their last sea voyage is indicated in Tables 29 and 30. The previous employment for 720 has been classified as on sea, for 225 on land, and for 16 there was no information. It was often difficult to decide from information recorded on the schedule whether the employment specified had been on sea or land. Occupation was specified for 470 of the workers at sea and for all on land. Occupational classifications, as has been previously pointed out, often overlap and do not give a clear indication of the work involved, but the variety of occupations, particularly on land, gives added emphasis to the cosmopolitan character of the group studied.

TABLE 29.—*Previous sea occupation*

Occupation	Number	Occupation	Number
Total.....	720	Mate, first.....	1
Able seaman.....	90	Mate, second.....	3
Baker.....	2	Mate, third.....	1
Barge captain.....	1	Mechanic.....	5
Boatswain.....	5	Messman.....	34
Butcher.....	2	Musician.....	1
Carpenter.....	6	Oilier.....	44
Coal passer.....	6	Ordinary seaman.....	15
Cook.....	24	Pantryman.....	4
Cook's helper.....	1	Porter.....	1
Deckhand.....	9	Printer.....	1
Draftsman.....	1	Pumpman.....	2
Electrician.....	1	Quartermaster.....	12
Engine department.....	1	Radio operator.....	2
Engineer.....	15	Stand-by worker.....	1
Engineer, third assistant.....	6	Steward.....	60
Fireman.....	72	Trimmer.....	2
Fisherman.....	1	U S Navy.....	1
Galleyman.....	1	Watchman.....	1
Harbor worker.....	3	Watertender.....	11
Machinist.....	2	Winchman (lumber schooner).....	1
Master mariner.....	1	Wiper.....	11
Mate.....	2	Not specified.....	250

¹⁵ See PUBLIC HEALTH REPORTS for Apr. 11, 1930, p. 790.

TABLE 30.—*Previous land occupation*

Occupation	Number	Occupation	Number
Total.....	225	Iron worker.....	1
Actor.....	1	Janitor.....	1
Acrobat.....	1	Laborer.....	48
Auto mechanic.....	5	Longshoreman.....	5
Baker.....	2	Machinist.....	1
Barber.....	1	Machinist's helper.....	2
Bellboy.....	6	Mechanic.....	1
Bookkeeper.....	1	Mechanic's helper.....	1
Bricklayer.....	2	Messenger.....	1
Butcher.....	1	Mill worker.....	1
Butler.....	1	Oil tester.....	1
Cable operator.....	1	Painter.....	0
Candymaker.....	1	Pin boy (bowling alley).....	1
Carpenter.....	2	Pipefitter.....	3
Chauffeur.....	4	Plumber's helper.....	1
Clerk.....	15	Policeman and detective.....	3
Coal miner.....	3	Porter.....	1
Cook.....	8	Power engineer.....	1
Dairy worker.....	1	Printer.....	1
Draftsman.....	1	Printing pressman.....	1
Driver.....	1	Railroad shop hand.....	3
Driver's helper.....	1	Restaurant worker.....	1
Electrician.....	4	Riding master.....	1
Electrician's helper.....	2	Road construction hand.....	1
Elevator operator.....	3	Salesman.....	2
Engineer.....	2	Sheet-metal worker.....	1
Engine room hand.....	1	Shipyards helper.....	1
Expressman.....	1	Shoe store manager.....	1
Factory hand.....	10	Soldier (U. S. Army).....	8
Farm and garden help.....	6	Storekeeper.....	1
Fireman.....	11	Street-car conductor.....	1
Furniture mover.....	1	Student.....	6
Garage helper.....	1	Truckdriver.....	1
Gas station helper.....	1	Upholsterer.....	1
Hospital attendant.....	1	Waiter.....	8
		Watchmaker.....	1

Employment during 1927.—The number of months of employment reported by the men for the previous year, 1927, is given below:

TABLE 31.—*Months employed during 1927*

Number of months	Number employed
Total.....	961
None.....	8
Less than 1 month.....	1
1 month.....	4
2 months.....	18
3 months.....	13
4 months.....	19
5 months.....	25
6 months.....	64
7 months.....	45
8 months.....	108
9 months.....	105
10 months.....	158
11 months.....	109
12 months.....	204
No data.....	79

One-fifth of the men (197), it will be observed, were employed for periods ranging from no employment during the year through seven months of employment; less than half of them (471) were reported to have had 10 or more months of employment.

For certain of these men a portion of the period of unemployment was undoubtedly due to stay in hospital; but such extended unem-

ployment, especially for those with small wages, means that aid from some source must be forthcoming when they are ill. Those who work with the seamen comment on the generosity which seamen show each other; but this, at most, could provide for only a part of maintenance required for weeks, and even months, of idleness. An earlier chapter has commented on difficulties involved in securing employment while under out-patient treatment.¹⁶

Length of sea service.—The periods of time during which these men have followed the sea show something of their life experience. It will be recalled that a high proportion of them were young men whose period of service could not have been long. Length of sea service reported—total service, and that on American and on foreign vessels—has been combined in Table 32.

TABLE 32.—*Length of sea service*

Length of service	Number of men with specified period of service				
	Total	Both services	American only	Foreign only	No data
Total.....	961	288	609	54	10
Under 5 years.....	434	58	346	30	.....
Under 1 year.....	58	2	53	3	.....
Under 6 months.....	19	1	16	2	.....
6 months to 1 year.....	39	1	37	1	.....
1 year.....	75	1	68	6	.....
2 years.....	97	10	81	6	.....
3 years.....	102	15	82	5	.....
4 years.....	102	30	62	10	.....
5 to 9 years.....	261	88	161	12	.....
10 to 14 years.....	142	67	68	7	.....
15 to 19 years.....	48	31	14	3	.....
20 to 24 years.....	34	23	9	2	.....
25 to 29 years.....	14	10	4	.....	.....
30 to 34 years.....	7	4	3	.....	.....
35 to 39 years.....	6	3	3	.....	.....
40 years.....	4	3	1	.....	.....
No data.....	11	1	.....	.....	10

The fact that seamen on ships of foreign registry are not eligible for free treatment in the marine hospitals, although they may receive it at the expense of their consul or steamship company, naturally operates to keep them out of these institutions and hence out of such a study as this. Nearly two-thirds of these seafaring men had sailed on American vessels only. The modal group (the group composed of men with the most frequently occurring length of service) had seen less than 5 years of sea service. Nearly one-eighth had followed the sea from 15 to 40 years.

Forty years was the longest period of sea service recorded and four men each had sailed the seas for that number of years. These were all of the white race; one was born in the United States, and the others in Ireland, Norway, and Switzerland. Two of the foreign

¹⁶ See pp. 864 and 865.

born were naturalized and the other had taken out first papers. Two were deckhands, one was a chief mate, and the other a first engineer.

Monthly income.—The scale of wages under the United States Shipping Board is the highest for seamen on ocean and coastwise vessels, except that some companies pay more to masters. The monthly pay for master, under the Shipping Board at the time the questionnaires were filled out, ranged from \$270 to \$350, according to the type of vessel. Chief engineers received from \$240 to \$310, and first mates or first assistant engineers, from \$175 to \$200. The wage for an able seaman was \$62.50 and for an ordinary seaman, \$47.50.

Vacations with pay are not granted, and in sea service there is no scale of promotion within a rank except as one is transferred to a vessel of a higher rating. Certain of the steamship companies, both American and foreign, maintain pension schemes which give some measure of protection for old age to their beneficiaries. Bonus systems are also in operation to cut down labor turnover. If, for example, the employees of one company return after a specified number of days they receive a 5 per cent increase in wages.

Table 33 gives a distribution of the men by race and by monthly income. A man's "keep" on shipboard is given in addition to the money wage he receives when paid off at the end of the voyage.

TABLE 33.—*Monthly cash income*

Amount received	Number receiving specified amounts, by race			
	Total	White	Negro	Other
Total.....	961	784	147	30
No cash income.....	1	1	—	—
Under \$25.....	15	5	9	1
\$25 to \$49.....	223	155	65	3
\$50 to \$74.....	527	449	56	22
\$75 to \$99.....	94	80	11	3
\$100 to \$124.....	40	36	4	—
\$125 to \$149.....	21	21	—	—
\$150 to \$174.....	16	16	—	—
\$175 to \$199.....	5	5	—	—
\$200 and over.....	8	8	—	—
No data.....	11	7	3	1

More than half of the whole group, 527, or 55 per cent, were receiving from \$50 to \$74 a month. White men composed 85 per cent of this group and of the group receiving \$75 to \$99 a month (a slightly larger percentage of white men than in the whole group of 961), 90 per cent of the group receiving \$100 to \$124, and all the groups receiving \$125 and more. More than two-thirds of those of other races were in the wage group of \$50 to \$74 a month, but the largest number of the negroes were receiving from \$25 to \$49 a month. A student on one of the State nautical school ships was receiving no cash income.

A further tabulation for the 527 in the wage group \$50 to \$74 a month showed that the largest number receiving any particular wage were the 95 with a monthly income each of \$62.50. The next largest group, 80 in number, were receiving \$65 a month. The modal monthly wage (the monthly wage received by the largest number) therefore for the 961 men was \$62.50.

The lowest wage, \$12 a month, was received by two Brazilian negroes. Another Brazilian negro was receiving \$14; a Chinese, \$15; an alien white (an apprentice officer), \$16; and another alien white, \$17. The last two were held at Ellis Island for deportation. The lowest wage received on a boat under American registry was \$20, paid to a deck boy and an ordinary seaman.

Of the 161 white men with an income of less than \$50 a month, 11, or 7 per cent, were married, while the married negroes numbered 16, or 22 per cent, of the 74 in the same income classification. Obviously their wives or other relatives assisted in the support of their homes, if they had any.

At the other end of the scale the highest wage received was \$285, paid in one case only. Three were receiving \$265, one \$245, another an average of \$225, and a sixth was receiving \$218.

USE OF LEISURE TIME ON SHIPBOARD AND ASHORE

Few fields of social inquiry present greater difficulties in the collection of accurate information than does the field of leisure-time interests. This field forms, however, a most important phase of life and can not therefore be ignored. In this study the 961 men were asked to tell how they spent their leisure time and Table 34 summarizes the information received.

TABLE 34.—*Leisure-time activities*

Activity	Number of men engaging in	Number of men not engaging in	No data
Attendance at moving pictures.....	778	50	133
Reading.....	757	¹ 64	¹ 140
Drinking.....	720	180	61
Card playing.....	444	154	363
Dancing.....	323	201	437
Athletics.....	281	139	541
Pool.....	263	200	499
Study.....	133	¹ 145	¹ 683

¹ Table 27 (p. 870) shows 28 men who can not read.

With reference to reading and study it will be recalled that 28 men reported that they could not read any language. This would reduce by 28 the number who might have used their leisure for reading or study.

The men who read specified the following choices: Fiction, 488; newspapers and magazines, 235; scientific, 81; classics, 11; and history, 4. Some of these were overlapping choices.

Nautical subjects were the chief interest for study and were the first preference expressed by 53 of the men. The others were as follows: Mechanical arts, 41; languages, 9; history, 5; aviation, 3; and philosophy and sociology, 3.

The type of athletics indulged in was stated by 60 to be outdoor and by 17, indoor. Forty mentioned swimming and seven, boxing.

In answering questions as to their drinking habits, several of the men stated that they drank in foreign ports and not in American. Of the 720 who stated that they drank, 94 have been classified as drinking to excess. In many instances the seaman stated he drank "moderately" and then added he was "drunk two or three times a month." Such have been included in the 94 with those who frankly admitted that they drank to excess.

Almost one-quarter of the men stated that they had relatives in port—150, members of their immediate family and 69 others, relatives by blood or marriage. For some of this number their leave ashore would be largely spent in visiting with family or relatives. Workers in the seamen's agencies, on the other hand, report that many seamen have so completely lost touch with home and family connections that even when on leave and near, they make no effort to resume the relationship.

The popularity of somewhat sedentary activities, such as reading, motion pictures, card playing, and even drinking, stands out in this list. Only about one-third reported that they engaged in dancing and a smaller number in athletics. It is of course true that many of the seamen have daily work requiring more active physical exercise than most occupations and so they may not have the same desire or need for it as those who lead more sedentary lives.

Seamen's comments.—Almost invariably "drinks and then girls" were sought as soon as the men went ashore on leave to seek amusement after the monotony of the voyage. Scarcely any other use of time in port was mentioned. Lonesome for the companionship of women, and strangers in the city, they find that the simplest way for them to meet girls is to go to cabarets and dance halls and these came in for frequent mention as places where girls might be "picked up." One sailor reported that it was a common practice, more so in foreign than American ports, for owners of the cabarets to send men to the ships with cards advertising drinks and music. It was understood that girls were to be found there also. Mention was made that in New York printed cards were freely distributed among colored young people advertising that card parties were being organized at given addresses in Harlem. Sailors patronized these "card parties," which

were in reality week-end parties, lasting from Friday night until Monday morning. Drinks and girls were supplied.

Houses of prostitution were visited "in every port," according to statements by many sailors. Others characterized this as the routine in a sailor's life. Girls were "picked up" by many on the street as well as in dance halls, restaurants, and drinking places. Record after record stated that the sailor became intoxicated, did not recall anything beyond that, but soon developed an infection.

Probable source of first infection.—Corroboration of these statements as to use of shore leave is found in their replies to the question concerning the probable source of their first infection. Most of the men answered this question frankly and their replies are indicated in Table 35.

TABLE 35.—*Probable source of first infection*

Source	Number of patients
Total.....	961
Commercial prostitute.....	676
Charity girl.....	187
Conjugal.....	1
Accidental.....	4
Others.....	9
Not known.....	5
No data.....	79

The terms in the above table have been used as customarily employed. A "commercial prostitute" receives payment and is either found in a house of prostitution to which strangers may go, or is not easily accessible and is found by chance or by introduction from some one else. The "charity girl" may be friend or stranger, but she receives no money and very often is not a prostitute.

Place of first infection.—Some 900 of the men indicated the country and place, ordinarily a port city, where their first infection was contracted. Almost every country represented in the countries of birth of the men was reported, but it is impossible to indicate which ports constituted the greatest menace without information as to the number of trips the men's ships had made to these ports in comparison with others visited. If treatments were generally given on shipboard and careful records kept, data would then be available as to the relative standing of ports as a source of venereal-disease infection. Despite this, it may be of interest to note that the United States was specified by 410 as the country where their first infection was received. This is not surprising in view of the fact that nearly one-half of the whole group were born in the United States. New York City, with other places within the port of New York, accounted for 116 of the 410. The remainder mentioned 85 other cities, practically all seaports, as the

places where they had first become infected. The largest number tabulated for any one of these cities was under 25.

On many schedules the workers recorded information which the sailors gave as to ports in foreign countries and in the United States, as well as districts in these ports, where prostitutes were to be found in large numbers. In some cases even the names and addresses of the women and girls were given. One dance hall in New York City was mentioned in particular as a place frequented mostly by sailors and by prostitutes and other girls waiting to be "picked up." This information can be made available to authorities in all of these places if it should seem desirable to do so.

KNOWLEDGE OF DISEASES

Knowledge before infection.—The men were questioned as to the extent of their knowledge of the venereal diseases before their first infection and how this knowledge was obtained. Their replies are tabulated in Table 36.

TABLE 36.—*Extent of knowledge before first infection*

Knowledge	Number
Total	961
None	264
Vague	388
Knowledge of prevention	198
No data	111

Of the 586 who stated that they had some knowledge of the venereal diseases before infection, 542 indicated how this had been received. Table 37 gives this information.

TABLE 37.—*Source of knowledge*

Source	Number
Total	961
Friends and acquaintances	317
Printed materials	131
Army and Navy lectures	75
Others	14
Physicians	5
No knowledge	264
No data	155

Additional information on the men's knowledge of these diseases came from the workers' comments on the schedules and from statements which several seamen wrote at the request of one of the investigators. These gave their experiences and suggested means to acquaint seamen with facts about the venereal diseases.

Seamen's comments.—The definite impression gained from comments made by these seamen and by social workers in contact with them is that there is a general lack of knowledge on the venereal

diseases, much misinformation, and that the seriousness of the diseases is not realized.

One gave it as his opinion that many seamen consider an infection a trivial matter and discuss among themselves the number of cases they have had and how they have cured themselves. Others, it was said, believe infection a matter of luck and always "take a chance." Numerous records revealed that discussions of the crew among themselves were their only source of knowledge, and many men said that on shipboard they had never seen anything in print on the subject. One of these was reported to have served on 14 American vessels and another on foreign ships for 10 years.

Table 37 indicates that seamen seldom have the benefit of the advice of physicians on this matter. Even from doctors at the clinics they seemed unable to secure information. One man who had wished to make some queries of the clinic doctors discovered they were so rushed that there was no opportunity. Another patient, thinking of marriage, desired to discuss this matter with the doctor, but found him too busy. "Too many fellows around" stopped another seaman from asking the questions he had in mind.

While most of the seamen's suggestions had to do with prophylaxis, there were some who commented on the need for general information on this subject. One, for example, remarked that all seafaring men should receive clear and frank information from qualified persons on all of the aspects of these infections, for they now hear only vaguely of them. The desirability of having printed information available was also mentioned. Several asked for printed materials for themselves or friends; one sailor passed around among his mates the pamphlet given him by the social service worker, and as a result several came in for examination.

Educational campaign.—The need for instruction to seamen on the venereal diseases has been conclusively demonstrated by the seamen's comments. Work in this regard has been done by the United States Public Health Service for several years in preparing pamphlets dealing with the venereal diseases and other health matters. In its effort to reach a large part of the personnel on ships the Public Health Service has had the cooperation of the American Merchant Marine Library Association, which in 1928 placed such pamphlets on 1,848 American ships. Some of the steamship companies maintain complete medical departments, which have carried on health educational activities among members of their crews. The American Social Hygiene Association in the national field, and the social hygiene committee of the New York Tuberculosis and Health Association in the local, regard educational work as an indispensable phase of their activities.¹⁷

¹⁷ The chapter on "Social Facilities for Seamen in the Port" will be published in the next issue of PUBLIC HEALTH REPORTS.

With the growth of the shipping industry and the increasing interest in public health matters generally, both public and private agencies have become more concerned about the venereal diseases, especially in their bearing on seamen. This study has served to emphasize anew the need which the Public Health Service is seeking to meet in the intensive educational campaign it has recently undertaken. In cooperation with the shipping companies, the Public Health Service has distributed material to instruct seamen in the nature and manifestations of venereal diseases and is eager to secure a wider cooperation among owners and operators of ships in making provision both for physical examination of their men and prophylactic treatment. The problem of venereal disease as it relates to seamen is considered an integral part of the whole health program—personal hygiene, hygiene of quarters, and the prevention and cure of tuberculosis and other diseases. An advance on many fronts is considered more likely to succeed in enlisting the seaman's sympathetic cooperation than repeated assault on venereal disease alone.

(The concluding chapters of this report, dealing with the social facilities for seamen in the port of New York, and presenting the conclusions, will be published in the following issue of PUBLIC HEALTH REPORTS.)

COURT DECISION RELATING TO PUBLIC HEALTH

Bovine tuberculosis eradication law upheld.—(Nebraska Supreme Court; State ex rel. Spillman, Atty. Gen., v. Splittgerber et al., 229 N. W. 332; decided Feb. 28, 1930.) An action was brought to enjoin the defendants from obstructing or preventing by force or otherwise any member or agent of the State department of agriculture from applying the tuberculin test to defendants' cattle, pursuant to chapter 12 of the 1927 laws. The defendants contended that the testing law was unconstitutional and sought, in a cross petition, to have the agents of the department enjoined from entering their premises for the purpose of applying the tuberculin test to their cattle. Judgment went for the plaintiff in the trial court, and on appeal to the supreme court the judgment was affirmed.

The supreme court referred to the case of State v. Heldt (115 Nebr. 435, 213 N. W. 578, 579), and quoted the following therefrom:

It is within the province of the legislature in the exercise of police power to require the examination, inspection, and testing of cattle for bovine tuberculosis, and if such disease is found to exist, to make provisions for the summary destruction of the diseased animals.

The court also stated as follows:

* * * The legislature may in the exercise of the police power require that the owners of breeding cattle submit their animals to the tuberculin test and may adopt reasonable measures for carrying out the requirement. (Fevold v. Board of Supervisors, 202 Iowa 1019, 210 N. W. 139.) And the legislature may use its discretion in adopting a classification making a distinction between the testing

of breeding cattle and feeding cattle when the object to be accomplished is for the public interest. * * *

DEATHS DURING WEEK ENDED APRIL 5, 1930

Summary of information received by telegraph from industrial insurance companies for the week ended April 5, 1930, and corresponding week of 1929. (From the Weekly Health Index, April 9, 1930, issued by the Bureau of the Census, Department of Commerce)

	Week ended Apr. 5, 1930	Corresponding week, 1929
Policies in force.....	75, 712, 783	73, 813, 366
Number of death claims.....	15, 574	16, 414
Death claims per 1,000 policies in force, annual rate.....	10.7	11.6

Deaths from all causes in certain large cities of the United States during the week ended April 5, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index, April 9, 1930, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Apr. 5, 1930		Annual death rate per 1,000, corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Apr. 5, 1930
	Total deaths	Death rate		Week ended Apr. 5, 1930	Corresponding week, 1929	
Total (63 cities).....	7,985	14.3	13.7	792	771	73
Akron.....	47			7	7	64
Albany.....	42	18.2	16.9	4	4	87
Atlanta.....	74	15.1	17.0	5	11	53
White.....	32			2	6	63
Colored.....	42	(¹)	(²)	3	5	48
Baltimore.....	249	15.6	15.7	22	26	75
White.....	185			11	17	60
Colored.....	64	(³)	(³)	8	9	129
Birmingham.....	67	15.7	16.4	8	11	75
White.....	28			0	5	0
Colored.....	39	(⁴)	(⁴)	8	6	189
Boston.....	250	16.3	14.8	26	18	73
Bridgeport.....	34			2	2	34
Buffalo.....	175	16.4	14.5	21	22	107
Cambridge.....	35	14.5	15.3	2	2	37
Camden.....	42	16.2	13.1	7	6	127
Canton.....	20	8.9	8.5	8	1	199
Chicago.....	819	13.5	12.5	95	73	84
Cincinnati.....	165			20	12	172
Cleveland.....	201	10.4	10.2	15	17	45
Columbus.....	91	15.9	11.7	13	1	127
Dallas.....	57	13.6	14.6	7	9	
White.....	44			7	5	
Colored.....	13	(⁵)	(⁵)	0	4	
Dayton.....	35	9.9	10.7	2	3	30
Denver.....	98	17.4	15.4	8	15	83
Des Moines.....	33	11.3	10.6	3	2	52
Detroit.....	346	13.1	13.9	54	53	83
Duluth.....	18	8.0	9.4	1	2	27
El Paso.....	39	17.3	14.2	3	8	
Erie.....	28			1	1	21
Fall River.....	28	10.9	12.8	8	2	183
Flint.....	25	8.8	11.9	6	3	70
Fort Worth.....	36	11.0	15.9	4	4	
White.....	29			3	4	
Colored.....	7	(⁶)	(⁶)	1	0	
Grand Rapids.....	57	18.1	14.0	3	10	46
Houston.....	64			6	8	
White.....	37			4	7	
Colored.....	27	(⁷)	(⁷)	2	1	
Indianapolis.....	111	15.1	15.3	5	4	37
White.....	91			2	3	17
Colored.....	20	(⁸)	(⁸)	3	1	161
Jersey City.....	79	12.7	11.7	13	8	113
Kansas City, Kans.....	39	17.2	15.0	2	3	47
White.....	26			1	3	27
Colored.....	13	(⁹)	(⁹)	1	0	217

Footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended April 5, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929—Continued

City	Week ended Apr 5, 1930		Annual death rate per 1,000, corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Apr. 5, 1930 ²
	Total deaths	Death rate ¹		Week ended Apr 5, 1930	Corresponding week, 1929	
Kansas City, Mo.	112	14.9	14.1	8	7	62
Knoxville	20	9.9	11.4	3	1	70
White	17			3	1	78
Colored	3	(³)	(³)	0	0	0
Los Angeles	259			21	24	64
Louisville	85	13.5	10.6	6	3	52
White	65			6	3	59
Colored	20	(³)	(³)	0	0	0
Lowell	23			3	4	71
Lynn	12	5.9	10.4	1	2	25
Memphis	97	26.6	20.3	9	9	107
White	51			5	5	92
Colored	46	(³)	(³)	4	4	135
Milwaukee	111	10.6	13.3	14	28	70
Minneapolis	94	10.8	11.3	8	7	52
Nashville	73	27.3	20.2	9	3	139
White	45			6	3	123
Colored	28	(³)	(³)	3	0	190
New Bedford	32			3	3	77
New Haven	35	9.7	11.4	3	2	58
New Orleans	153	19.3	18.1	17	9	98
White	80			10	5	88
Colored	70	(³)	(³)	7	4	118
New York	1,731	15.0	13.8	138	172	58
Bronx Borough	209	11.4	10.7	7	23	16
Brooklyn Borough	586	13.2	11.7	61	55	65
Manhattan Borough	690	20.5	19.6	49	67	80
Queens Borough	195	11.9	10.9	16	23	46
Richmond Borough	51	17.6	14.5	5	4	93
Newark, N. J.	108	11.9	13.8	11	14	58
Oakland	46	8.8	12.4	3	4	36
Oklahoma City	39			4	10	79
Omaha	60	14.0	15.0	2	5	23
Paterson	35	12.6	19.1	4	8	70
Philadelphia	543	14.2	13.9	62	48	92
Pittsburgh	195	15.1	15.0	24	26	88
Portland, Oreg.	62			3	6	37
Providence	81	14.8	14.6	8	10	73
Richmond	49	13.1	13.9	6	5	80
White	27			3	3	67
Colored	22	(³)	(³)	3	2	131
Rochester	87	13.8	12.6	9	8	80
St. Louis	255	15.7	15.3	13	13	42
St. Paul	55			5	3	51
Salt Lake City ⁴	53	20.0	11.7	6	3	94
San Diego	28			4	0	84
San Francisco	175	15.6	15.5	9	6	62
Schenectady	29	16.2	12.3	4	1	125
Somerville	20	10.2	7.6	3	3	98
Spokane	24	11.5	16.7	3	3	78
Springfield, Mass.	40	13.9	15.7	3	8	47
Syracuse	51	13.3	13.6	4	9	50
Tacoma	29	13.7	12.3	1	1	26
Toledo	89	14.8	11.2	5	2	46
Trenton	34	12.8	16.5	4	5	74
Utica	44	22.0	17.0	6	1	170
Washington, D. C.	156	14.7	11.8	19	9	110
White	90			6	1	62
Colored	66	(³)	(³)	13	8	231
Waterbury	19			1	2	26
Wilmington, Del.	34	13.8	15.8	1	4	23
Worcester	65	17.2	18.2	8	9	104
Yonkers	27	11.6	11.2	3	2	72
Youngstown	41	12.3	9.6	7	3	110

¹ Annual rate per 1,000 population.

² Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.

³ Data for 72 cities.

⁴ Deaths for week ended Friday.

⁵ In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended April 5, 1930, and April 6, 1929

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended April 5, 1930, and April 6, 1929

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Apr. 5, 1930	Week ended Apr. 6, 1929	Week ended Apr. 5, 1930	Week ended Apr. 6, 1929	Week ended Apr. 5, 1930	Week ended Apr. 6, 1929	Week ended Apr. 5, 1930	Week ended Apr. 6, 1929
New England States								
Maine	1	7	11	7	30	293	1	1
New Hampshire	2	3	3	13	16	37	0	0
Vermont	2	2			51	2	0	0
Massachusetts	82	70	13	18	1,069	399	10	6
Rhode Island	2	14		1	2	87	0	0
Connecticut	11	23	7	19	31	587	0	4
Middle Atlantic States								
New York	122	308	158	135	1,401	1,268	22	42
New Jersey	113	114	19	10	1,275	343	3	2
Pennsylvania	136	199			1,412	2,291	17	35
East North Central States								
Ohio	56	53	15	110	738	1,418	8	8
Indiana	32	16			80	491	18	0
Illinois	151	135	23	34	691	1,635	16	19
Michigan	38	69	2	13	1,571	739	39	88
Wisconsin	13	20	36	30	656	914	4	0
West North Central States								
Minnesota	10	13	1		309	682	1	1
Iowa	9	4			512	26	9	0
Missouri	23	30	12	1	113	107	18	21
North Dakota	8	6			17	83	1	2
South Dakota	12	3	1		69	34	0	0
Nebraska	11	18		10	501	81	3	2
Kansas	11	15	2	21	629	432	4	3
South Atlantic States								
Delaware	2	4			9	28	0	0
Maryland	23	28	33	40	42	105	1	1
District of Columbia	9	8	1	1	8	21	0	1
Virginia							3	
West Virginia	17	7	42	28	88	310	1	1
North Carolina	21	16	14		33	45	10	0
South Carolina	10	10	926	558		22	2	0
Georgia	7	10	85	44	215	16	2	1
Florida	10	8		3	390	79	1	0
East South Central States:								
Kentucky					61	70	1	2
Tennessee	6	5	66	22	63	19		1
Alabama	13	10	147	59	242	190	6	3
Mississippi	10	10					12	

¹ New York City only.

² Week ended Friday.

*Cases of certain communicable diseases reported by telegraph by State health officers
for weeks ended April 5, 1930, and April 6, 1929—Continued*

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Apr. 5, 1930	Week ended Apr. 6, 1929	Week ended Apr. 5, 1930	Week ended Apr. 6, 1929	Week ended Apr. 5, 1930	Week ended Apr. 6, 1929	Week ended Apr. 5, 1930	Week ended Apr. 6, 1929
West South Central States:								
Arkansas.....	3	3	44	31	25	135	6	3
Louisiana.....	28	10	13	30	86	68	1	8
Oklahoma ¹	13	13	68	74	271	85	4	9
Texas.....	62	29	200	166	178	207	3	2
Mountain States:								
Montana.....		7			4	110	2	2
Idaho.....	4	1		2	14	1	2	7
Wyoming.....		1			67	28	1	0
Colorado.....	8	8		1	728	27	0	10
New Mexico.....	8	10		13	94	1	3	0
Arizona.....	10	2	1	1	34		3	11
Utah ²	1	9	4		228	10	20	4
Pacific States:								
Washington.....	8	5		3	446	138	7	8
Oregon.....	9	7	26	69	93	171	1	2
California.....	54	36	28	74	2,216	49	12	14

Division and State	Polio-myelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Apr. 5, 1930	Week ended Apr. 6, 1929	Week ended Apr. 5, 1930	Week ended Apr. 6, 1929	Week ended Apr. 5, 1930	Week ended Apr. 6, 1929	Week ended Apr. 5, 1930	Week ended Apr. 6, 1929
New England States:								
Maine.....	1	0	52	86	0	14	3	2
New Hampshire.....	0	0	22	16	0	0	2	0
Vermont.....	0	0	22	4	1	5	0	0
Massachusetts.....	2	1	204	303	0	5	6	2
Rhode Island.....	0	0	17	20	0	0	0	0
Connecticut.....	0	0	117	66	0	0	1	0
Middle Atlantic States:								
New York.....	0	3	605	652	4	0	19	12
New Jersey.....	1	0	244	179	0	0	2	2
Pennsylvania.....	1	1	546	570	2	0	13	22
East North Central States:								
Ohio.....	1	4	337	290	215	44	14	8
Indiana.....	0	0	176	219	171	92	1	12
Illinois.....	1	0	519	408	174	113	2	6
Michigan.....	0	2	310	532	72	37	2	10
Wisconsin.....	1	0	167	192	22	3	3	1
West North Central States:								
Minnesota.....	0	0	127	97	2	2	1	11
Iowa.....	0	0	76	149	111	45	0	0
Missouri.....	0	0	119	64	48	46	2	6
North Dakota.....	0	0	44	22	18	0	1	2
South Dakota.....	0	0	15	32	33	27	0	0
Nebraska.....	0	0	86	146	51	47	0	5
Kansas.....	0	0	113	183	131	79	4	3
South Atlantic States:								
Delaware.....	0	0	12	6	0	0	1	0
Maryland ²	1	0	127	50	0	0	3	2
District of Columbia.....	0	0	17	22	0	0	0	0
Virginia.....						12		
West Virginia.....	0	0	40	39		15	6	6
North Carolina.....	1	0	28	30	22	23	2	2
South Carolina.....	3	1	11	16	0	4	6	2
Georgia.....	0	0	23	17	0	0	1	8
Florida.....	0	0	3	1	0	1	0	3
East South Central States:								
Kentucky.....	0	1	59	152	21	3	7	0
Tennessee.....	1	0	37	41	6	7	7	2
Alabama.....	0	0	15	17	7	10	3	4
Mississippi.....	0	0	5	7	9	0	4	8

¹ Week ended Friday.² Figures for 1930 are exclusive of Oklahoma City and Tulsa, and for 1929 are exclusive of Oklahoma City.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended April 5, 1930, and April 6, 1929—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Apr. 5, 1930	Week ended Apr. 6, 1929	Week ended Apr. 5, 1930	Week ended Apr. 6, 1929	Week ended Apr. 5, 1930	Week ended Apr. 6, 1929	Week ended Apr. 5, 1930	Week ended Apr. 6, 1929
West South Central States:								
Arkansas	0	0	10	8	12	6	3	6
Louisiana	0	0	18	43	3	8	7	2
Oklahoma	0	0	18	52	94	109	4	8
Texas	1	0	54	88	162	128	6	6
Mountain States:								
Montana	0	0	44	25	9	3	6	4
Idaho	0	0	4	3	13	31	3	0
Wyoming	0	0	8	6	3	5	0	0
Colorado	0	0	41	43	12	18	0	0
New Mexico	0	0	11	17	10	1	2	3
Arizona	0	0	14	8	28	17	0	1
Utah	1	0	5	8	0	2	2	0
Pacific States:								
Washington	1	0	51	38	103	33	0	6
Oregon	0	1	28	52	28	34	2	1
California	4	1	164	413	73	58	5	5

¹ Week ended Friday

² Figures for 1930 are exclusive of Oklahoma City and Tulsa, and for 1929 are exclusive of Oklahoma City.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week.

State	Men- gococ- cus men- gitis	Diph- theria	Infl- uenza	Ma- laria	Meas- les	Pe- lagra	Poli- mye- litis	Scarlet fever	Small- pox	Ty- phoid fever
<i>February, 1930</i>										
Kansas	29	57	22		1,638		2	571	281	5
New Mexico	17	36	7	4	349	1	2	64	4	5
<i>March, 1930</i>										
Arizona	19	28	75		95		1	81	130	7
Connecticut	4	85	57	1	90		1	580	0	6
Porto Rico		49	47	671	210	1	0		0	18
Vermont		6			142		0	49	13	
Wyoming	3	7	2		46		0	41	35	

<i>February, 1930</i>		Cases	<i>February, 1930</i>		Cases
Chicken pox			Mumps		
Kansas		556	Kansas		691
New Mexico		104	New Mexico		110
Conjunctivitis			Ophthalmia neonatorum:		
Kansas		1	New Mexico		1
New Mexico		2	Paratyphoid fever:		
Dysentery			Kansas		1
New Mexico		1	Septic sore throat:		
German measles:			Kansas		
Kansas		9	New Mexico		1
New Mexico		3	Tetanus		
Impetigo contagiosa.			New Mexico		1
Kansas		2	Trench mouth.		
Lead poisoning			Kansas		2
Kansas		1	Undulant fever.		
Lethargic encephalitis:			Kansas		1
Kansas		1	Vincent's angina		
New Mexico		1	Kansas		1

Whooping cough:	Cases	Mumps—Continued.	Cases
Kansas.....	330	Porto Rico.....	4
New Mexico.....	26	Vermont.....	20
		Wyoming.....	49
<i>March, 1930</i>		Ophthalmia neonatorum:	
Chicken pox:		Connecticut.....	1
Arizona.....	64	Porto Rico.....	3
Connecticut.....	489	Puerperal fever:	
Vermont.....	228	Porto Rico.....	13
Wyoming.....	18	Rabies in animals	
Colibacillosis:		Connecticut.....	10
Porto Rico.....	4	Septic sore throat	
Conjunctivitis:		Connecticut.....	11
Connecticut.....	3	Tetanus	
Dysentery.		Connecticut.....	2
Arizona.....	5	Porto Rico.....	18
Porto Rico.....	15	Tetanus (infantile):	
Filariasis.		Porto Rico.....	24
Porto Rico.....	4	Trachoma	
German measles:		Arizona.....	27
Connecticut.....	223	Porto Rico.....	5
Glandular fever.		Undulant fever	
Wyoming.....	1	Arizona.....	1
Lead poisoning		Wyoming.....	1
Connecticut.....	2	Whooping cough	
Lethargic encephalitis.		Arizona.....	69
Connecticut.....	2	Connecticut.....	197
Mumps		Porto Rico.....	73
Arizona.....	304	Vermont.....	20
Connecticut.....	178	Wyoming.....	13

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 95 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 31,880,000. The estimated population of the 90 cities reporting deaths is more than 30,390,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended March 29, 1930, and March 30, 1929

	1930	1929	Estimated expectancy
<i>Cases reported</i>			
Diphtheria			
46 States.....	1,239	1,394	
95 cities.....	515	774	899
Measles.			
45 States.....	15,453	12,823	
95 cities.....	5,454	4,311	
Meningococcus meningitis			
45 States.....	277	731	
95 cities.....	139	123	
Poliomyelitis			
47 States.....	13	13	
Scarlet fever			
46 States.....	5,043	5,880	
95 cities.....	1,927	1,919	1,533
Smallpox.			
46 States.....	1,644	1,027	
95 cities.....	136	65	75
Typhoid fever:			
46 States.....	179	196	
95 cities.....	51	58	28
<i>Deaths reported</i>			
Influenza and pneumonia:			
90 cities.....	1,057	1,003	
Smallpox:			
90 cities.....	0	1	
Chicago, Ill.....	0	1	

City reports for week ended March 29, 1930

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during non-epidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1921 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND								
Maine								
Portland	7	1	0	2	0	3	27	2
New Hampshire								
Concord	0	0	0		0	0	0	3
Manchester	0	1	0		0	0	0	2
Vermont								
Barre	2	0	0		0	0	1	0
Burlington	0	0	0		0	0	0	1
Massachusetts								
Boston	32	36	12	9	1	390	82	45
Fall River	4	3	4	2	2	0	1	3
Springfield	12	4	1		0	0	0	0
Worcester	16	4	3		0	67	2	1
Rhode Island								
Patucket	4	1	0		0	2	0	3
Providence	7	8	2		1	0	0	14
Connecticut								
Bridgeport	3	6	0	1	0	0	0	4
Hartford		6						
New Haven	33	1	0		0	0	5	6
MIDDLE ATLANTIC								
New York								
Buffalo	21	12	2		0	8	11	21
New York	298	248	104	62	11	593	209	239
Rochester	12	9	1	1	0	7	1	6
Syracuse	45	5	0		1	7	104	4
New Jersey								
Camden	2	7	1	3	2	1	1	4
Newark	48	16	25	6	0	241	28	15
Trenton	9	3	1		0	18	0	5
Pennsylvania								
Philadelphia	93	66	19	19	5	195	101	68
Pittsburgh	45	16	16		3	276	5	45
Reading	13	3	4		0	1	2	3
Scranton	7	3	0		0	0	0	0
EAST NORTH CENTRAL								
Ohio								
Cincinnati	14	9	5		2	14	3	6
Cleveland	113	28	15	16	6	13	49	25
Columbus	16	3	0	2	0	79	14	11
Toledo	40	4	3		0	176	26	8
Indiana								
Fort Wayne	1	2	3		0	0	0	
Indianapolis	22	5	6		0	12	5	14
South Bend	1	1	0		0	0	0	2
Terre Haute	1	1	0		0	2	0	1
Illinois								
Chicago	116	95	111	6	5	35	40	58
Springfield	15	1	0	1	1	2	0	0
Michigan								
Detroit	93	46	37	2	1	837	74	32
Flint	14	3	0		0	21	2	9
Grand Rapids	1	1	0		1	0	1	10

City reports for week ended March 29, 1930—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneu- monia, deaths reported
		Cases, estimated expect- ancy	Cases reported	Cases reported	Deaths reported			
EAST NORTH CEN- TRAL—continued								
Wisconsin:								
Kenosha.....	6	2	0	-----	0	1	2	1
Milwaukee.....	138	15	5	2	1	17	101	18
Racine.....	5	2	1	1	1	6	0	2
Superior.....	2	4	0	-----	0	13	0	0
WEST NORTH CENTRAL								
Minnesota:								
Duluth.....	9	0	0	-----	0	51	0	0
Minneapolis.....	36	13	0	-----	2	20	53	4
St. Paul.....	41	9	0	-----	0	5	12	9
Iowa:								
Des Moines.....	2	2	1	-----	-----	42	1	-----
Sioux City.....	-----	1	-----	-----	-----	-----	-----	-----
Waterloo.....	43	0	0	-----	-----	41	0	-----
Missouri:								
Kansas City.....	23	4	1	-----	0	8	1	16
St. Joseph.....	1	0	0	-----	0	0	0	4
St. Louis.....	26	39	27	-----	1	7	27	-----
North Dakota:								
Fargo.....	5	0	0	-----	0	0	14	0
Grand Forks.....	0	0	0	-----	-----	1	0	-----
South Dakota:								
Aberdeen.....	10	0	1	-----	-----	0	0	-----
Sioux Falls.....	0	0	0	-----	-----	23	0	-----
Nebraska:								
Omaha.....	14	2	5	-----	0	104	3	10
Kansas:								
Topeka.....	4	1	0	-----	0	110	15	1
Wichita.....	12	2	0	-----	0	31	2	1
SOUTH ATLANTIC								
Delaware:								
Wilmington.....	5	2	3	-----	0	5	1	2
Maryland:								
Baltimore.....	132	25	10	15	1	10	6	31
Cumberland.....	2	0	0	-----	0	1	0	4
Frederick.....	0	0	0	-----	0	0	0	0
District of Columbia:								
Washington.....	20	12	13	2	1	10	0	21
Virginia:								
Lynchburg.....	4	1	2	-----	0	103	9	1
Norfolk.....	22	2	2	-----	0	1	47	2
Richmond.....	9	3	2	-----	1	3	4	7
Roanoke.....	0	0	0	-----	0	88	0	4
West Virginia:								
Charleston.....	16	1	0	1	1	17	0	5
Wheeling.....	3	1	0	-----	1	0	0	3
North Carolina:								
Raleigh.....	12	0	0	-----	0	0	0	2
Wilmington.....	14	0	1	-----	0	0	0	0
Winston-Salem.....	13	1	0	1	0	0	19	4
South Carolina:								
Charleston.....	4	0	1	34	0	2	2	2
Columbia.....	5	0	0	-----	0	0	15	2
Georgia:								
Atlanta.....	16	2	3	18	2	42	27	9
Brunswick.....	1	0	0	-----	0	0	0	0
Savannah.....	1	1	0	3	0	1	0	7
Florida:								
Miami.....	7	3	1	-----	0	1	4	1
St. Petersburg.....	-----	0	-----	-----	0	-----	-----	1
Tampa.....	31	1	0	-----	1	66	8	2
EAST SOUTH CENTRAL								
Kentucky:								
Covington.....	1	0	0	-----	1	1	0	2
Tennessee:								
Memphis.....	16	4	4	-----	1	0	23	14
Nashville.....	0	0	0	-----	4	0	0	9

City reports for week ended March 29, 1930—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneu- monia, deaths reported
		Cases, estimated expect- ancy	Cases reported	Cases reported	Deaths reported			
EAST SOUTH CENTRAL—continued								
Alabama:								
Birmingham.....	12	1	2	8	4	8	3	8
Mobile.....	1	1	1	2	5	5	0	2
Montgomery.....	3	0	1	1		148	1	
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith.....	4	0	0			24	0	
Little Rock.....	5	1	0		0	8	2	3
Louisiana:								
New Orleans.....	0	9	19	7	5	46	0	14
Shreveport.....	15	0	0	0	0	5	9	4
Oklahoma:								
Oklahoma City.....	22	1	0	5	0	49	6	6
Tulsa.....	9	1	2			188	0	
Texas:								
Dallas.....	16	4	7	1	1	142	3	8
Fort Worth.....	3	3	0	0	0	10	1	1
Galveston.....	0	0	1	1	0	0	0	1
Houston.....	0	4	7	0	0	0	0	11
San Antonio.....	2	3	2		3	0	0	5
MOUNTAIN								
Montana:								
Billings.....	0	0	0		0	0	6	2
Great Falls.....	4	0	0		0	0	12	1
Helena.....	0	0	0	0	0	0	2	0
Missoula.....	0	0	0		0	1	0	1
Idaho:								
Boise.....	0	0	0		0	0	0	0
Colorado:								
Denver.....	27	8	5		5	210	15	12
Pueblo.....	5	1	0		0	6	62	1
New Mexico:								
Albuquerque.....	4	0	0		0	35	13	2
Arizona:								
Phoenix.....	0	1	1		0	22	0	1
Utah:								
Salt Lake City.....	7	3	0		1	178	9	2
Nevada:								
Reno.....	0	0	0		0	4	0	1
PACIFIC								
Washington:								
Seattle.....	43	3	0			184	96	
Spokane.....	18	2	0			1	0	
Tacoma.....	15	1	4			33	1	4
Oregon:								
Portland.....	29	8	12	2	1	26	18	6
Salem.....	6	0	0			0	11	
California:								
Los Angeles.....	101	40	7	23	0	472	58	24
Sacramento.....	2	2	0	0	0	22	37	4
San Francisco.....	38	19	6	3	1	367	109	5

City reports for week ended March 29, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
NEW ENGLAND											
Maine:											
Portland.....	4	3	0	0	0	2	0	0	0	4	27
New Hampshire:											
Concord.....	0	0	0	0	0	2	0	0	0	0	11
Manchester.....	3	3	0	0	0	0	0	0	0	0	5
Vermont:											
Barre.....	0	0	0	1	0	1	0	0	0	0	4
Burlington.....	2	0	0	0	0	0	0	0	0	0	14
Massachusetts:											
Boston.....	83	85	0	0	0	16	1	1	0	60	248
Fall River.....	5	3	0	0	0	3	1	0	0	15	36
Springfield.....	8	1	0	0	0	2	0	0	0	9	31
Worcester.....	10	12	0	0	0	3	0	0	0	28	67
Rhode Island:											
Pawtucket.....	2	2	0	0	0	0	0	0	0	14	21
Providence.....	11	10	0	0	0	2	0	0	0	9	73
Connecticut:											
Bridgeport.....	12	12	0	0	0	4	0	0	0	1	49
Hartford.....	5		0			0	0				
New Haven.....	10	11	0	0	0	0	0	0	0	13	46
MIDDLE ATLANTIC											
New York:											
Buffalo.....	29	25	0	1	0	11	0	0	0	14	155
New York.....	369	354	1	0	0	115	8	21	2	47	1,703
Rochester.....	14	4	0	0	0	3	0	10	2	7	83
Syracuse.....	11	35	0	0	0	1	0	1	0	63	40
New Jersey:											
Camden.....	7	4	0	0	0	1	0	0	0	1	44
Newark.....	38	51	0	0	0	11	0	0	0	19	109
Trenton.....	5	14	0	0	0	3	0	0	0	1	41
Pennsylvania:											
Philadelphia.....	103	139	0	0	0	34	2	0	0	20	544
Pittsburgh.....	30	28	0	0	0	14	0	0	0	16	212
Reading.....	5	5	0	0	0	1	0	0	0	14	29
Scranton.....	1	3	0	0			0			2	
EAST NORTH CENTRAL											
Ohio:											
Cincinnati.....	19	14	1	2	0	7	0	0	0	2	157
Cleveland.....	39	97	0	0	0	23	0	1	0	75	228
Columbus.....	10	13	1	2	0	5	0	0	0	3	84
Toledo.....	13	23	0	10	0	8	0	1	1	4	77
Indiana:											
Fort Wayne.....	6	1	1	1	0	3	1	1	0	2	25
Indianapolis.....	11	21	7	7	0	7	0	1	0	4	
South Bend.....	3	7	0	0	0	0	0	0	0	0	18
Terre Haute.....	2	9	0	0	0	1	0	0	0	0	23
Illinois:											
Chicago.....	130	261	2	6	0	32	1	1	0	48	664
Springfield.....	4	0	0	0	0	1	0	0	0	4	29
Michigan:											
Detroit.....	114	146	1	8	0	17	1	0	0	48	293
Flint.....	12	10	2	1	0	1	0	0	0	10	34
Grand Rapids.....	9	4	0	0	0	1	0	0	0	2	47
Wisconsin:											
Kenosha.....	2	4	1	0	0	1	0	0	0	5	8
Milwaukee.....	33	24	0	1	0	9	0	1	0	50	115
Racine.....	4	4	0	0	0	1	0	0	0	5	18
Superior.....	4	2	0	0	0	0	0	0	0	0	9
WEST NORTH CENTRAL											
Minnesota:											
Duluth.....	9	1	0	1	0	0	0	2	0	17	14
Minneapolis.....	51	14	3	1	0	7	0	0	0	0	90
St. Paul.....	33	23	0	0	0	2	0	0	0	20	69

City reports for week ended March 29, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
WEST NORTH CENTRAL—continued											
Iowa											
Des Moines.....	9	18	2	15	—	—	0	0	—	0	31
Sioux City.....	0	—	1	—	—	—	0	—	—	—	—
Waterloo.....	3	1	0	23	—	—	0	0	—	3	—
Missouri											
Kansas City.....	21	32	2	4	0	5	1	0	0	20	108
St. Joseph.....	2	2	0	1	0	1	0	0	0	0	20
St. Louis.....	37	38	2	1	0	11	1	0	1	8	218
North Dakota											
Fargo.....	1	0	0	3	0	0	0	0	0	14	7
Grand Forks.....	0	3	0	1	—	—	0	0	—	0	—
South Dakota											
Aberdeen.....	1	0	0	1	—	—	0	0	—	15	—
Sioux Falls.....	2	2	0	4	—	—	0	0	—	0	8
Nebraska											
Omaha.....	4	6	3	9	0	1	0	0	2	3	67
Kansas											
Topeka.....	3	4	1	4	0	0	0	0	0	15	15
Wichita.....	4	31	3	1	0	0	0	0	0	1	38
SOUTH ATLANTIC											
Delaware											
Wilmington.....	5	5	0	0	0	0	0	0	0	1	29
Maryland											
Baltimore.....	32	89	0	0	0	23	1	1	0	18	234
Cumberland.....	1	0	0	0	0	2	0	0	0	0	22
Frederick.....	0	1	0	0	0	0	0	0	0	0	3
District of Colum- bia											
Washington.....	25	13	1	0	0	14	1	0	0	2	153
Virginia											
Lynchburg.....	0	1	0	0	0	0	0	0	0	10	9
Norfolk.....	2	3	0	0	0	3	0	0	0	2	—
Richmond.....	3	2	0	0	0	1	0	0	0	0	55
Roanoke.....	1	0	0	0	0	1	0	0	0	2	22
West Virginia											
Charleston.....	1	0	0	0	0	1	1	1	0	11	22
Wheeling.....	2	3	0	0	0	1	1	0	0	1	30
North Carolina											
Raleigh.....	1	0	0	2	0	1	0	0	0	6	11
Wilmington.....	0	1	0	0	0	2	0	1	0	9	9
Winston-Salem.....	1	2	2	2	0	0	0	0	0	4	14
South Carolina											
Charleston.....	0	1	1	0	0	3	0	0	0	0	20
Columbia.....	0	1	0	0	0	0	0	0	0	22	16
Georgia											
Atlanta.....	4	13	4	0	0	7	0	0	0	7	83
Brunswick.....	0	1	0	0	0	0	0	0	0	0	2
Savannah.....	0	1	1	0	0	1	0	0	0	0	43
Florida											
Miami.....	1	0	0	0	0	3	0	0	0	0	29
St. Petersburg.....	0	—	0	—	0	0	0	—	1	—	26
Tampa.....	1	2	0	0	0	5	1	0	0	2	26
EAST SOUTH CENTRAL											
Kentucky											
Covington.....	2	2	0	0	0	1	0	0	0	0	19
Tennessee											
Memphis.....	13	23	2	1	0	8	1	2	0	0	88
Nashville.....	4	8	0	2	0	5	0	2	0	2	67
Alabama											
Birmingham.....	3	3	6	0	0	4	1	1	0	7	84
Mobile.....	0	1	1	0	0	1	0	0	0	0	23
Montgomery.....	0	2	0	0	—	—	0	0	—	0	—

City reports for week ended March 29, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culosis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith.....	1	0	0	1	-----	-----	0	0	-----	1	-----
Little Rock.....	1	2	0	2	0	1	0	0	0	0	-----
Louisiana:											
New Orleans.....	7	20	0	0	0	18	2	0	0	1	153
Shreveport.....	0	1	1	0	0	4	0	1	1	0	33
Oklahoma:											
Oklahoma City.....	2	20	2	14	0	8	0	0	0	0	40
Tulsa.....	3	3	2	2	2	-----	0	0	-----	12	-----
Texas:											
Dallas.....	4	7	3	2	0	1	0	0	0	0	66
Fort Worth.....	2	1	1	6	0	2	-----	0	0	0	33
Galveston.....	1	0	0	0	0	0	0	0	0	0	14
Houston.....	1	1	1	3	0	4	0	0	0	0	64
San Antonio.....	1	1	0	5	0	10	0	1	0	0	82
MOUNTAIN											
Montana:											
Billings.....	1	0	0	0	0	0	0	0	0	0	9
Great Falls.....	1	26	1	0	0	0	0	0	0	0	4
Helena.....	0	0	0	0	0	0	0	0	0	3	3
Missoula.....	0	2	1	0	0	0	0	0	0	0	9
Idaho:											
Boise.....	0	1	0	0	0	0	0	0	0	2	7
Colorado:											
Denver.....	13	10	0	0	0	9	0	0	0	56	77
Pueblo.....	1	0	0	1	0	1	0	0	0	0	10
New Mexico:											
Albuquerque.....	0	5	0	0	0	2	0	0	0	0	11
Arizona:											
Phoenix.....	1	1	0	16	0	3	0	0	0	0	16
Utah:											
Salt Lake City.....	3	13	2	0	0	1	0	0	0	31	42
Nevada:											
Reno.....	1	0	0	2	0	0	0	0	0	0	6
PACIFIC											
Washington:											
Seattle.....	8	14	3	5	-----	-----	0	0	-----	21	-----
Spokane.....	7	1	8	12	-----	-----	0	1	-----	4	-----
Tacoma.....	2	2	3	10	0	0	0	0	0	17	27
Oregon:											
Portland.....	5	5	10	9	0	2	0	0	0	18	76
Salem.....	0	0	0	0	-----	-----	0	0	-----	12	-----
California:											
Los Angeles.....	33	45	2	3	0	32	1	0	0	34	325
Sacramento.....	2	3	0	4	0	1	0	0	0	0	28
San Francisco.....	20	36	1	1	0	13	1	0	0	2	172

City reports for week ended March 29, 1930—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis *		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Maine									
Portland	0	0	0	1	0	0	0	0	0
Rhode Island									
Providence	0	0	0	0	0	1	0	0	0
MIDDLE ATLANTIC									
New York:									
Buffalo	0	0	0	1	0	0	0	0	0
New York 1	19	0	1	2	0	0	1	0	0
Rochester	1	0	0	0	0	0	0	0	0
Pennsylvania:									
Philadelphia	4	3	0	1	0	0	0	0	0
Pittsburgh	2	2	0	0	0	0	0	1	0
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	2	1	0	0	0	0	0	0	0
Cleveland	1	1	0	0	0	0	0	0	0
Columbus	0	0	1	1	0	0	0	0	0
Indiana:									
Fort Wayne	1	0	0	0	0	0	0	0	0
Indianapolis	1	0	0	0	0	0	0	0	0
Illinois:									
Chicago	5	3	1	0	0	0	0	0	0
Springfield	1	0	0	0	0	0	0	0	0
Michigan:									
Detroit	31	3	1	0	0	0	0	0	0
Wisconsin:									
Kenosha	0	0	0	0	0	0	0	1	0
Milwaukee	2	2	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
Minneapolis	1	0	0	0	0	0	0	0	0
Iowa:									
Waterloo	5	2	0	0	0	0	0	0	0
Missouri:									
Kansas City	2	3	0	0	0	0	0	0	0
St. Joseph	0	1	0	0	0	0	0	0	0
St. Louis	8	4	1	0	0	0	0	0	0
North Dakota: 1									
Fargo	0	1	0	0	0	0	0	0	0
SOUTH ATLANTIC									
Maryland:									
Baltimore	1	0	0	0	0	0	0	0	0
District of Columbia:									
Washington	0	0	1	0	0	1		0	1
North Carolina:									
Raleigh	0	0	0	0	1	1	1	0	0
South Carolina:									
Charleston	0	0	0	0	3	0	0	0	0
Columbia	0	0	0	0	0	1	0	0	0
Georgia:									
Atlanta	4	1	0	0	0	1	0	0	0
Savannah	1	1	0	0	0	0	0	0	0
Florida:									
Miami 1	0	1				1	0	0	
Tampa	0	0	0	0	0	1	9	0	0

1 Typhus fever: 2 cases: 1 case at New York City and 1 case at Miami, Fla.

2 Undulant fever. 1 case at Omaha, Nebr.

3 Nonresident.

City reports for week ended March 29, 1930—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Polio-myelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
EAST SOUTH CENTRAL									
Tennessee									
Memphis.....	16	10	0	0	0	0	0	0	0
Nashville.....	1	0	0	0	0	0	0	0	0
Alabama									
Montgomery.....	0	0	0	0	1	0	0	0	0
WEST SOUTH CENTRAL									
Arkansas									
Fort Smith.....	1	1	0	0	0	0	0	0	0
Louisiana									
New Orleans.....	5	3	0	0	2	0	0	0	0
Oklahoma									
Tulsa.....	1	0	0	0	0	0	0	0	0
Texas									
Dallas.....	0	0	0	0	1	1	0	0	0
Fort Worth.....	0	0	0	0	0	2	0	0	0
San Antonio.....	1	0	0	0	0	0	0	0	0
MOUNTAIN									
Montana									
Helena.....	1	1	0	0	0	0	0	0	0
Colorado									
Denver.....	2	0	0	0	0	0	0	0	0
Utah									
Salt Lake City.....	10	2	0	0	0	0	0	0	0
PACIFIC									
Washington									
Seattle.....	3		0		0		0	0	
California									
Los Angeles.....	1	1	1	0	0	0	0	0	0
Sacramento.....	2	2	0	0	0	0	0	0	0
San Francisco.....	4	2	0	0	0	0	0	1	0

The following table gives the rates per 100,000 population for 98 cities for the 5-week period ended March 29, 1930, compared with those for a like period ended March 30, 1929. The population figures used in computing the rates are approximate estimates, authoritative figures for many of the cities not being available. The 98 cities reporting cases have an estimated aggregate population of more than 32,000,000. The 91 cities reporting deaths have more than 30,500,000 estimated population.

Summary of weekly reports from cities, February 23 to March 29, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929¹

DIPHTHERIA CASE RATES

	Week ended—									
	Mar. 1, 1930	Mar. 2, 1929	Mar. 8, 1930	Mar. 9, 1929	Mar. 15, 1930	Mar. 16, 1929	Mar. 22, 1930	Mar. 23, 1929	Mar. 29, 1930	Mar. 30, 1929
98 cities.....	² 107	121	90	133	³ 104	126	100	135	⁴ 84	128
New England.....	111	123	84	108	84	135	60	119	⁵ 53	101
Middle Atlantic.....	109	140	89	185	90	159	102	180	84	187
East North Central.....	⁶ 125	131	95	130	135	121	133	142	115	119
West North Central.....	118	135	116	144	108	152	72	131	⁷ 65	139
South Atlantic.....	88	64	71	67	⁸ 99	84	82	60	64	66
East South Central.....	61	55	40	68	27	55	40	41	54	41
West South Central.....	108	145	153	114	120	95	146	118	134	118
Mountain.....	⁹ 0	61	86	61	26	44	86	35	43	44
Pacific.....	73	72	45	36	73	65	52	68	40	29

MEASLES CASE RATES

98 cities.....	¹ 548	578	634	537	² 602	679	793	757	³ 892	716
New England.....	463	635	543	424	680	617	944	563	⁴ 1,120	467
Middle Atlantic.....	364	158	440	162	418	135	568	179	644	154
East North Central.....	⁵ 351	1,142	447	983	476	1,387	543	1,595	661	1,592
West North Central.....	920	1,555	918	1,699	765	1,967	973	1,832	⁶ 737	1,784
South Atlantic.....	136	197	489	234	⁷ 449	380	564	451	637	414
East South Central.....	850	62	810	62	715	41	1,457	137	1,093	89
West South Central.....	755	57	542	103	661	141	587	190	841	95
Mountain.....	⁸ 2,004	697	2,051	818	2,386	636	2,415	766	3,421	409
Pacific.....	1,908	229	1,845	112	2,104	133	2,100	230	2,549	232

SCARLET FEVER CASE RATES

98 cities.....	¹ 367	298	329	298	² 346	324	323	345	³ 315	318
New England.....	368	337	394	309	390	368	341	364	⁴ 337	391
Middle Atlantic.....	325	230	298	228	345	266	310	308	315	264
East North Central.....	⁵ 513	402	452	411	466	418	422	495	386	453
West North Central.....	334	321	338	356	302	368	328	292	⁶ 297	310
South Atlantic.....	236	137	189	155	⁷ 200	146	262	159	249	167
East South Central.....	196	219	196	198	108	232	202	304	263	267
West South Central.....	146	202	149	270	179	366	116	270	120	274
Mountain.....	⁸ 685	218	292	157	369	157	343	113	446	78
Pacific.....	411	493	281	410	267	444	236	367	239	311

SMALLPOX CASE RATES

98 cities.....	¹ 31	16	25	12	² 25	12	25	11	³ 22	16
New England.....	0	2	2	0	0	4	0	7	⁴ 2	11
Middle Atlantic.....	0	0	0	0	0	0	0	0	0	0
East North Central.....	⁵ 40	24	24	18	30	20	20	12	18	17
West North Central.....	89	15	78	6	68	31	95	12	⁶ 94	25
South Atlantic.....	2	7	2	6	⁷ 4	6	2	0	7	13
East South Central.....	7	7	20	7	27	7	7	7	20	41
West South Central.....	120	107	67	95	26	42	52	99	49	91
Mountain.....	⁸ 51	87	9	44	9	17	34	44	26	44
Pacific.....	102	24	123	17	135	22	120	14	83	22

¹ The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1930, and 1929, respectively.

² South Bend, Ind., and Denver, Colo., not included.

³ Charleston, W. Va., and Savannah, Ga., not included.

⁴ Concord, N. H., Hartford, Conn., and Sioux City, Iowa not included.

⁵ Concord, N. H., and Hartford, Conn., not included.

⁶ South Bend, Ind., not included.

⁷ Sioux City, Iowa, not included.

⁸ Denver, Colo., not included.

Summary of weekly reports from cities, February 23 to March 29, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929—Continued

TYPHOID FEVER CASE RATES

	Week ended—									
	Mar. 1, 1930	Mar. 2, 1929	Mar. 8, 1930	Mar. 9, 1929	Mar. 15, 1930	Mar. 16, 1929	Mar. 22, 1930	Mar. 23, 1929	Mar. 29, 1930	Mar. 30, 1929
98 cities.....	28	4	8	5	26	5	8	7	28	10
New England.....	0	2	2	4	4	2	0	7	2	4
Middle Atlantic.....	4	2	4	4	5	4	7	6	15	5
East North Central.....	6	0	3	3	1	2	1	4	3	17
West North Central.....	6	8	8	4	4	2	9	6	14	8
South Atlantic.....	55	2	37	6	32	7	13	6	5	13
East South Central.....	34	14	13	7	27	7	94	27	34	27
West South Central.....	0	19	34	19	7	11	11	8	7	19
Mountain.....	20	9	0	0	51	26	17	9	0	0
Pacific.....	7	7	7	17	12	10	12	19	2	0

INFLUENZA DEATH RATES

91 cities.....	20	39	17	34	14	33	16	27	15	18
New England.....	11	20	18	16	2	25	2	4	10	4
Middle Atlantic.....	17	30	13	25	12	31	14	23	11	12
East North Central.....	6	31	13	31	9	23	9	20	11	16
West North Central.....	15	39	3	21	6	27	12	30	6	18
South Atlantic.....	26	67	33	47	18	37	26	30	15	22
East South Central.....	59	149	60	75	96	119	88	90	110	90
West South Central.....	69	86	34	117	46	102	27	74	34	35
Mountain.....	34	52	34	61	17	35	60	78	51	52
Pacific.....	12	31	3	22	3	16	9	31	3	16

PNEUMONIA DEATH RATES

91 cities.....	198	222	170	203	164	194	165	168	167	157
New England.....	213	272	202	218	155	200	199	186	194	171
Middle Atlantic.....	230	240	191	233	204	197	168	190	197	180
East North Central.....	6	180	142	163	128	155	150	141	118	132
West North Central.....	136	228	127	195	142	180	121	189	133	150
South Atlantic.....	216	255	203	234	183	198	203	185	194	159
East South Central.....	199	264	243	239	265	201	214	172	258	172
West South Central.....	199	207	172	226	153	230	214	78	176	125
Mountain.....	223	279	146	183	120	252	189	165	172	131
Pacific.....	77	148	92	138	80	135	95	163	114	151

² South Bend, Ind., and Denver, Colo., not included.

³ Charleston, W. Va., and Savannah, Ga., not included.

⁴ Concord, N. H., Hartford, Conn., and Sioux City, Iowa, not included.

⁵ Concord, N. H., and Hartford, Conn., not included.

⁶ South Bend, Ind., not included.

⁷ Sioux City, Iowa, not included.

Denver, Colo., not included.

Hartford, Conn., not included.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Weeks ended March 15 and 22, 1930.—The Department of Pensions and National Health reports cases of certain communicable diseases in Canada for the weeks ended March 15 and March 22, 1930, as follows:

Week ended March 15, 1930

Province	Cerebro-spinal fever	Influenza	Poliomy-elitis	Smallpox	Typhoid fever
Prince Edward Island ¹					
Nova Scotia.....		4			
New Brunswick ¹					
Quebec.....	3		1		8
Ontario.....	4	12		38	9
Manitoba.....			1	2	
Saskatchewan.....	2			9	1
Alberta.....	1		1	2	1
British Columbia.....				1	
Total.....	10	16	3	52	19

Week ended March 22, 1930

Prince Edward Island ¹					
Nova Scotia.....		2			
New Brunswick.....					3
Quebec.....	4				19
Ontario.....	1	5		27	13
Manitoba.....				1	1
Saskatchewan.....				11	
Alberta.....	1		1	5	4
British Columbia.....	1			7	3
Total.....	7	7	1	51	43

¹ No case of any disease listed in the table was reported during the week

Quebec Province—Communicable diseases—Week ended March 29, 1930.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended March 29, 1930, as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis.....	1	Mumps.....	102
Chicken pox.....	92	Puerperal septicemia.....	1
Diphtheria and croup.....	48	Scarlet fever.....	101
Erysipelas.....	3	Tuberculosis.....	62
German measles.....	21	Typhoid fever.....	17
Influenza.....	4	Whooping cough.....	82
Measles.....	112		

CUBA

Habana—Communicable diseases—March, 1930.—During the month of March, 1930, certain communicable diseases were reported in the city of Habana, Cuba, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Chicken pox.....	45	—	Measles.....	2	—
Diphtheria.....	7	3	Scarlet fever.....	13	1
Leprosy.....	2	—	Tuberculosis.....	37	11
Malaria ¹	7	—	Typhoid fever ¹	10	4

¹ Many of these cases from the interior of the island.

Provinces—Communicable diseases—Four weeks ended March 15, 1930.—During the four weeks ended March 15, 1930, cases of certain communicable diseases were reported in the Provinces of Cuba as follows:

Disease	Pinar del Rio	Habana	Matanzas	Santa Clara	Camaguey	Oriente	Total
Cancer.....	—	1	1	3	2	2	9
Chicken pox.....	—	46	—	3	1	4	54
Diphtheria.....	1	22	—	9	2	2	36
Malaria.....	2	7	—	1	8	53	71
Measles.....	—	2	—	22	7	—	31
Paratyphoid fever.....	—	1	—	3	3	5	12
Scarlet fever.....	—	25	—	—	—	2	27
Typhoid fever.....	21	29	5	24	3	25	107

DENMARK

Communicable diseases—January, 1930.—During the month of January, 1930, cases of certain communicable diseases were reported in Denmark, as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis.....	7	Paratyphoid fever.....	1
Chicken pox.....	107	Pneumonia.....	408
Diphtheria and croup.....	693	Polomyelitis.....	4
Erysipelas.....	344	Puerperal fever.....	24
German measles.....	6	Scabies.....	1,178
Influenza.....	6,543	Scarlet fever.....	212
Jaundice.....	210	Tetanus.....	3
Lethargic encephalitis.....	15	Typhoid fever.....	6
Measles.....	1,157	Undulant fever ¹	36
Mumps.....	2,704	Whooping cough.....	1,335

¹ Reported from the State Serum Institute.

ITALY

Communicable diseases—Four weeks ended December 22, 1929.—During the four weeks ended December 22, 1929, certain communicable diseases were reported in Italy, as follows:

Disease	Nov. 25-Dec. 1		Dec. 2-8		Dec. 9-15		Dec. 16-22	
	Cases	Com-munes affected	Cases	Com-munes affected	Cases	Com-munes affected	Cases	Com-munes affected
Anthrax.....	29	26	52	40	24	17	7	7
Cerebrospinal meningitis.....	13	11	11	9	10	10	11	7
Chicken pox.....	444	123	481	156	522	150	375	118
Diphtheria and croup.....	907	417	777	408	750	359	663	320
Dysentery.....	9	6	10	3	5	4	7	4
Lethargic encephalitis.....	4	4	1	1	4	3		
Measles.....	2, 138	297	1, 870	275	1, 836	279	2, 001	241
Polio-myelitis.....	19	17	14	9	14	14	9	8
Scarlet fever.....	758	234	556	211	589	203	411	163
Typhoid fever.....	855	386	798	337	687	280	516	244

MEXICO

Tampico—Communicable diseases—February, 1930.—During the month of February, 1930, certain communicable diseases were reported in Tampico, Mexico, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Chicken pox.....	3		Measles.....	4	
Diphtheria.....	1		Smallpox.....	1	
Enteritis (various).....	10	24	Tuberculosis.....	50	32
Influenza.....	45		Typhoid fever.....	3	3
Leprosy.....	2		Whooping cough.....	11	2
Malaria.....	63	10			

TRINIDAD (BRITISH WEST INDIES)

Port of Spain—Vital statistics (comparative)—February, 1930.—The following statistics for the month of February for the years 1929 and 1930 are taken from a report issued by the Public Health Department of Port of Spain, Trinidad:

February

	1929	1930
Number of births.....	132	137
Birth rate per 1,000 population.....	25.9	26.4
Number of deaths.....	111	117
Death rate per 1,000 population.....	21.8	22.6
Deaths under 1 year.....	17	23
Infant mortality rate per 1,000 births.....	128.8	167.9

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

CHOLERA—Continued

[C indicates cases; D, deaths; P, present]

Place	Sept. 22- Oct. 18, 1929	Oct. 20- Nov. 16, 1929	Nov. 17- Dec. 14, 1929	Dec. 15, 1929- Jan. 11, 1930	Week ended—											
					January, 1930					February, 1930					March, 1930	
					18	25	1	8	15	22	1	8	15	22		
Japan.....	34															
Kobe.....	3															
Osaka.....	14															
Siam.....	9		7	11		2	1									
Ayudhya.....	4		3	2					1	3						
Bangkok.....	2									1						
Dhannapuri.....	4		5	9		2	1		1	1						
Nagara Pathom.....	2		1	1												
Nagara Rajsima.....	2									1						
On vessel:																
S. S. at Suva, Fiji Islands.....																
S. S. Sutley, at Batavia, from Calcutta.....												1				
Indo-China (French) (see also table above).																
Annam.....	C	1		2										2	2	
Cambodia.....	C	38	221	43										41	3	
Cochin-China.....	C	45	3	46										76	64	
Laos.....	C	12		15										110	39	

1 Reports incomplete.

PLAGUE

Place	Sept. 22- Oct. 19, 1929	Oct. 20- Nov. 16, 1929	Nov. 17- Dec. 14, 1929	Dec. 15- Jan. 11, 1930	Week ended—										Apr. 5, 1930					
					January, 1930					February, 1930						March, 1930				
					18	25	1	8	15	22	1	8	15	22		29				
Argentina:																				
Andalgala. ¹		2																		
Rosario.....		3																		
Plague-infected rats.....	C								P											
Santa Fe.....	C	1						6												
Tucuman.....	C																			
Villa Las.....	D											2								
Asores: Ponta Delgada.....	C				P															
Belgian Congo: Djugu.....	D			2																
Brazil:																				
Rio de Janeiro.....	C							1												
Sao Paulo. ¹	D							1												
British East Africa (see also table below): Uganda.....	C	405	336	281	127	35	25	22												
Ceylon:		343	310	262	112	20	21	30												
Colombo.....	C	3		5	2	3			1	2										
Plague-infected rats.....	D	1		4	1	3			1	2										
Galle.....	C			1					1	1										
Chile: Antofagasta.....	C	1								1										
China: Foochow.....	C	P														2				
Dutch East Indies:																				
Batavia and West Java.....	C	131	266	340	286	35	43	46	43	31										
Plague-infected rats.....	D	128	262	335	280	35	43	44	42	30										
Celebes—Makassar.....	C		1	8		2		1			2	1								
Plague-infected rodents.....	D			1			1													
East Java and Madura.....	C			1	4															
Java and Madura.....	D	60	41	29	2															
Surabaya.....	D	275	475	537	458	71	92	80	74	64	69									
Surabaya.....	D	2		4																

¹ On Mar. 11, 3 deaths from bubonic plague were reported in Andalgala, Catamarca Province, Argentina, since Feb. 5, 1930.
² 21 cases of plague with 8 deaths were reported Jan. 29, 1930, in the State of Sao Paulo, Brazil; 15 of these cases were in the city of Sao Paulo.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE—Continued

[C indicates cases; D, deaths; P, present]

Place	Sept. 22- Oct. 19, 1929	Oct. 20- Nov. 18, 1929	Nov. 17- Dec. 14, 1929	Dec. 15- 1929- Jan. 11, 1930	Week ended—										
					January, 1930		February, 1930					March, 1930			Apr. 5, 1930
					18	25	1	8	15	22	1	8	15	22		29
Ecuador (see table below).															
Egypt:															
Alexandria.....	13	11	6	2											
Assiout.....	3	4	3	3											
Asuan.....	1		1	4											
Beheira.....			1	2											
Beni Suef.....		2	1												
Dakahieh.....			1	1											
Gharbieh.....	6	6	3	2											
Port Said.....	2		2	1											
France: Paris.....	1														
Greece (see also table below):															
Messania.....															
Patras.....	3	2													
Piræus.....			1												
Pyrgos.....		6	2												
Hawaii: Hamakua—Kukuihaele—Plague-infected rats	3														
India.....	8,334	8,265	6,016	4,713	1,169	1,420	1,172	1,053							
	4,395	4,374	3,457	3,093	837	874	855	742							
Basseln.....															
Bombay.....	1														
Plague-infected rats.....	32	31	36	29	7	10									
Madras Presidency.....	139	152	235	336		8	8	11	11	13	5	13	21		
Rangoon.....	64	130	108	174		4	5	4	10	10	17	20	14		
	5	2	1	3	1			2	1	3	1	2	2		
	6	6	2	4				2	2	2	1	2	2		
Plague-infected rats.....	6	6	2	4				1	1	5	1	1	1		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE—Continued

[C indicates cases; D, deaths; P, present]

Place	Sep-tem-ber, 1929	Octo-ber, 1929	No-ven-ber, 1929	De-cem-ber, 1929	Janu-ary, 1930	Feb-ruary, 1930	Place	Sep-tem-ber, 1929	Octo-ber, 1929	No-ven-ber, 1929	De-cem-ber, 1929	Janu-ary, 1930	Feb-ruary, 1930
British East Africa (see also table above):													
Kenya.....	28	146	57	54	34		Madagascar—Continued.	7	5				
Uganda.....	511	384	179	216	87		Tamstave Province.....	1	4		2		
Ecuador: Guayaquil.....	451	351	164	196	75		Tananarive Province.....	141	141	103	97		
	7	12	14	17	8	2		135	132	93	98		
	3	4	3	6	4	2	Peru.....						
	8	5	9	13	4	2	Senegal:						
Plague-infected rats.....	5	5	2	1			Baol.....			23	5		
Greece (see also table above).....	2	2	1						45	16	2		
Indo-China (see also table above).....							Dakar.....	24	13	16	2		
Madagascar (see also table above).....	195	203	182	10	10	27			26	8	17	8	
	152	193	163	232	238		Louga.....	17	2	5	1		
Amboitra Province.....	9	2	42	111					108	41			2
Antistrabe Province.....	13	9	2	33	96		Rufisque.....	64	24	1			
Itasy Province.....	13	17	5	16									
	5	10	19	16			Thies.....	34	3			3	
Miarinarivo.....	11	12	5	3									
	11	11	5	8			Tiavaouane.....	28	3				
Moramanga Province.....	5	27	4	12					119	41	8	1	
	4	27	3	12					55	21	4		

* Incomplete reports.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place	Sept. 22- Oct. 19, 1929	Oct. 20- Nov. 16, 1929	Nov. 17- Dec. 14, 1929	Dec. 15, 1929- Jan. 11, 1930	Week ended—						
					January, 1930			February, 1930			
					18	25	1	8	15	22	March, 1930
Indo-China (see also table below):											
Prompenh.....	1	2									
Saigon and Cholon.....											
Iraq:											
Baghdad.....											
Basra.....		9	20	16	3	1	3	1	2	1	
Diyalah Liwa.....		3	10	5							
Kirkuk Liwa.....		63	46								
Mossoul.....		13	7								
Ivory Coast (see table below).		16	70								
Macao.....		24	152	80							
Mexico (see also table below):		6	99	3							
Agua Calientes.....	8	1									
Coahuila.....	4	1	6	9							
Jalisco (State): Guadalaajara.....	10	6	11	3	2	3	4	1	3	6	4
Juarez.....	2	2	2								
Mexico City and surrounding territory.....	8	9	19	23	10	9	9	2	16	13	9
Morelos State. ¹	8	4	9	4	1	3	1	2	5	2	14
San Luis Potosi.....											
Morocco (see table below).											
Netherlands: Rotterdam.....	39	18	5	1							
Nigeria: Lagos.....	5	1	1	2	1	2	1	1	2		
	1			1							

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths, P, present]

Place	August, 1929	Sep-tember, 1929	Octo-ber, 1929	Novem-ber, 1929	December, 1929			January, 1930			February, 1930		
					1-10	11-20	21-31	1-10	11-20	21-31	1-10	11-20	21-28
Belgian Congo.....					41	33							
Dahomey.....		725	19	42	2	4							
Indo-China (see also table above).....				19	4								
Ivory Coast.....		263	64	128	245			136	140	184	148	286	
Sudan (French).....		2											
Syria: Beirut.....		29	37	28	P	17	9	6	4	225	12	P	20
				60	10	9		18	6	46	4	7	7
				1	6								

Place	Sep-tem-ber, 1929	Oc-to-ber, 1929	No-tem-ber, 1929	De-tem-ber, 1929	Jan-uary, 1930	Feb-ruary, 1930	Place	Sep-tem-ber, 1929	Oc-to-ber, 1929	No-tem-ber, 1929	De-tem-ber, 1929	Jan-uary, 1930	Feb-ruary, 1930
Bolivia: La Paz.....		120	22				Nigeria.....	189	233	228	238		
British East Africa (see also table above).....								C	34	47	45		
Kenya.....	C	66	278	168	12			D	62	57	70		
Chosen.....	C		2					Persia.....	37		P		
Mexico: Durango (see also table above).....	D	2	2	4	12	6		D	41	100	136	215	114
Morocco.....	C	3	12	41	84	74		Turkey.....	9	29	12	457	66
								D					42

TYPHUS FEVER

Place	Week ended—														
	January, 1930			February, 1930			March, 1930								
	18	25	1	8	15	22	1	8	15	22	1	8	15	22	29
Algeria:															
Algiers.....															
Constantine Department.....															
Oran.....															
Bolivia: La Paz.....															
Brazil: Sao Paulo.....															
Bulgaria.....															
Sofia.....															
Chile:															
Talcahuano.....															
Valparaiso.....															
China: Tientsin.....															
Chosen (see table below).....															
Czechoslovakia (see table below).....															
Egypt:															
Alexandria.....															
Assuan.....															
Behetra Province.....															
Cairo.....															
Dakablieh.....															
Port Said.....															
Suez.....															
Greece (see table below).....															
Iraq: Baghdad Liwa.....															
Ireland:															
Irish Free State.....															
Northern Ireland—Cookstown.....															
Latvia (see table below).....															
Lithuania (see table below).....															

1 Press reports show that 10 deaths from typhus fever occurred in Sao Paulo, Brazil, from Nov. 3 to 30, 1929.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER—Continued

[C indicates cases; D, deaths; P, present]

Place	Week ended—														
	January, 1930					February, 1930					March, 1930				
	18	25	1	8	15	22	1	8	15	22	1	8	15	22	29
Mexico: Mexico City, including municipalities in Federal district.....	9	3	5	6	2	3	2	1	4	2	3				
Morocco.....	5	1	2	2	1	1	2	1	1	1	3				
Palestine.....	3	4	2	6	7	2	7		7	2	8	11	4		
Peru: Arequipa (see table below).....	3	2	1	1						1			1		2
Poland.....	31	62	74	61	67	96	52	81		72	55	56			
Portugal: Oporto.....	3	3	10	4	5	7	8	1		3	2	3			
Rumania.....	25	19	103	82	41	48	96	56		58	1			2	
Tunisia.....	1	1	3	2	5	8	2	7	S	11	2				
Turkey (see table below).....	1	1	3	2						3					
Union of South Africa:															
Cape Province.....	C	P	P	P	P	P	P	P	P	P	P				
Natal.....	C	P	P	P	P	P	P	P	P	P	P				
Orange Free State.....	C	P	P	P	P	P	P	P	P	P	P				
Transvaal.....	C	P	P	P	P	P	P	P	P	P	P				
Yugoslavia (see table below).....	C	P	P	P	P	P	P	P	P	P	P				
Chosen: Seoul.....	C	1	17	Peru: Arequipa.....	D	1	1								
Czechoslovakia.....	C	1	10	Turkey.....	C	4	10	2	4	2	3				
France.....	C	1		Yugoslavia.....	D	1	1								
Greece: Athens.....	C	3	12		D										
Latvia.....	C	2			D										
Lithuania.....	C	2	2		D										
	D	3	6	70											
		1	5												

YELLOW FEVER

During the month of September, 1929, cases of yellow fever were reported as follows: Nicaragua, Brazil, 1 case Rio de Janeiro, Brazil, 2 cases; Montrovia, Liberia, 1 case.

X

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SUMMARY OF CURRENT PREVALENCE OF COMMUNICABLE DISEASES IN THE UNITED STATES ¹

February 23–March 29, 1930

The prevalence of certain important communicable diseases as indicated by weekly telegraphic reports from State health departments ² to the Public Health Service is summarized below. This summary has been prepared from the data published weekly in the PUBLIC HEALTH REPORTS under the section entitled "Prevalence of Disease."

Meningococcus meningitis.—This disease, which for more than a year has been at a relatively high level has, during the latter part of March, shown signs of abating. It is possible that early March marks the crest of an epidemic wave that gradually built up over a period of about five years; for since 1925 each year has seen a higher meningitis incidence than the preceding year.

During the five weeks ended March 29, however, the total number of reported cases was 1,376, compared with 1,546 cases in the same period of 1929, a decline of about 14 per cent. During February the number of reported cases (914) was slightly higher than for the same period of the preceding year (903).

The highest attack rates during March were reported from some of the Rocky Mountain and Southern States. Following are the highest rates per 100,000 population for the 5-week period: Utah 6.6, Arizona 5.9, Mississippi 5.7, Tennessee 5.6, and New Mexico 4.8. In the Basin States, Michigan and Indiana had the highest rates, about 4.1 and 2.5, respectively, per 100,000 population.

Smallpox.—Smallpox, which during the recent months has been at the highest levels of recent years, declined slightly from the February levels. During the 5-week period ended March 29, 1930, the reported cases numbered 6,139, as compared with 4,591 for the corresponding period of the preceding year. The heaviest incidence was reported from the Great Lakes group of States, although a sprinkling of other States reported excess rates, notably, California, Oklahoma, Kansas, and North Dakota.

¹ From the Office of Statistical Investigations, United States Public Health Service.

² The numbers of States reporting for the various diseases are as follows: Typhoid fever, 41, poliomyelitis, 43; meningococcus meningitis, 42; smallpox, 42; measles, 38; diphtheria, 42; scarlet fever, 41; influenza, 31.

Poliomyelitis.—This disease was at approximately the average level of recent years. Seventy-eight cases were reported during the 5-week period, as compared with 82 last year.

Diphtheria.—The incidence of diphtheria was the lowest reported for the period during the last five years, and was probably the lowest of all time. Reported cases numbered 6,111, as compared with 7,027 for the period last year.

Influenza.—The incidence of influenza was also the lowest of the last five years. The reported cases numbered 4,959, as compared with 16,580 for the corresponding period last year.

Scarlet fever.—Scarlet fever incidence was approximately normal—23,939 cases, as compared with 25,790 for the period last year.

Typhoid fever.—Typhoid fever was also about normal—780 cases, as compared with 821 for the corresponding period of last year.

Measles.—The incidence of measles was slightly below the average of recent years, although an increased prevalence brought it above last year's figure in March; there were 61,892 cases reported, as compared with 53,544 for the period last year.

Mortality, all causes.—The general death rate in 64 cities reporting to the Bureau of the Census showed a rather low rate for this season, namely 14.0 per thousand population (annual basis), as compared with 14.5 and 14.8, respectively, for the corresponding periods of the two preceding years.

ACT COORDINATING FEDERAL PUBLIC HEALTH ACTIVITIES

[PUBLIC—No. 106—71ST CONGRESS]

[H. R. 8807]

An Act To provide for the coordination of the public-health activities of the Government, and for other purposes

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That upon the request of the head of an executive department or an independent establishment which is carrying on a public health activity the Secretary of the Treasury is authorized to detail officers or employees of the Public Health Service to such department or independent establishment in order to cooperate in such work. When officers or employees are so detailed their salaries and allowances shall be paid by the Public Health Service from applicable appropriations.

SEC. 2. (a) The Surgeon General of the Public Health Service is authorized to detail personnel of the Public Health Service to educational and research institutions for special studies of scientific problems relating to public health and for the dissemination of information relating to public health, and to extend the facilities of the

Public Health Service to health officials and scientists engaged in special study.

(b) The Secretary of the Treasury is authorized to establish such additional divisions in the Hygienic Laboratory in the District of Columbia as he deems necessary to provide agencies for the solution of public health problems, and facilities therein for the coordination of research by public health officials and other scientists and for demonstrations of sanitary methods and appliances.

SEC. 3. The administrative office and bureau divisions of the Public Health Service in the District of Columbia shall be administered as a part of the departmental organization, and the scientific offices and research laboratories of the Public Health Service (whether or not in the District of Columbia) shall be administered as a part of the field service.

SEC. 4. Hereafter, under such regulations as the President may prescribe, medical, dental, sanitary engineer, and pharmacist officers selected for general service in the regular corps of the Public Health Service and subject to change of station shall be appointed by the President, by and with the advice and consent of the Senate; original appointments shall be made only in the grade corresponding to that of assistant surgeon or passed assistant surgeon, except as provided under sections 5 and 6 of this act.

SEC. 5. The President is authorized to appoint, by and with the advice and consent of the Senate, to grades in the regular corps not above that of medical director, under such regulations as he may prescribe, not to exceed a total of fifty-five medical, dental, sanitary engineer, and pharmacist officers in the Public Health Service upon the date of passage of this act (except commissioned officers of the regular corps). Not more than four such appointments shall be in a grade above that of surgeon. In making such appointments due regard shall be had to the salary received by such officer at the time of such appointment. For purposes of pay and pay period, said officers shall be credited only with active service in the Public Health Service and active commissioned service in the Army and the Navy.

SEC. 6. The Secretary of the Treasury is authorized to order officers in the reserve of the Public Health Service to active duty for the purpose of training and of determining their fitness for appointment in the regular corps, and such active duty shall be credited for purposes of future promotion in the regular corps.

SEC. 7. Whenever commissioned officers of the Public Health Service are not available for the performance of permanent duties requiring highly specialized training and experience in scientific research, the Secretary of the Treasury shall report that fact to the President with his recommendations, and the President, under the provision of this section, is authorized to appoint, by and with the

advice and consent of the Senate, not to exceed three persons in any one fiscal year to grades in the regular corps of the Public Health Service above that of assistant surgeon, but not to a grade above that of medical director; and for purposes of pay and pay period any person appointed under the provisions of this section shall be considered as having had on the date of appointment service equal to that of the junior officer of the grade to which appointed.

SEC. 8. Any person commissioned in the regular corps of the Public Health Service under the provisions of this act of an age greater than forty-five years, if placed on waiting orders for disability incurred in line of duty, shall receive pay at the rate of 4 per centum of active pay for each complete year of service in the Army, Navy, or Public Health Service, the total to be not more than 75 per centum.

SEC. 9. Hereafter commissioned officers of the regular corps of the Public Health Service, after examination under regulations approved by the President, shall be promoted according to the same length of service and shall receive the same pay and allowances as are now or may hereafter be authorized for officers of corresponding grades of the Medical Corps of the Army, except that—

(a) For purposes of future promotion an officer whose original appointment to the regular corps under the provisions of this act is in a grade above that of assistant surgeon shall be considered as having had on the date of appointment service equal to that of the junior officer of the grade to which appointed; if the actual service of such officer in the Public Health Service exceeds that of the junior officer of the grade, such actual service not exceeding ten years for a passed assistant surgeon, and fourteen years for a surgeon shall be credited for purposes of future promotion;

(b) Pharmacists shall not be promoted to the grade of passed assistant surgeon until after five years of service in the grade of assistant surgeon and shall not be promoted above the grade of passed assistant surgeon.

(c) When an officer, after examination under regulations approved by the President, is found not qualified for promotion for reasons other than physical disability incurred in line of duty—

(1) If in the grade of assistant surgeon, he shall be separated from the service and paid six months' pay and allowances;

(2) If in the grade of passed assistant surgeon, he shall be separated from the service and paid one year's pay and allowances; and

(3) If in the grade of surgeon or of senior surgeon, he shall be reported as not in line of promotion, or placed on waiting orders and paid at the rate of 2½ per centum for each complete year of active commissioned service in the Public Health Service, but in no case to exceed 60 per centum of his active pay at the time he is placed on waiting orders.

SEC. 10. (a) The President is authorized to prescribe appropriate titles for commissioned officers of the Public Health Service other than medical officers, corresponding to the grades of medical officers. Hereafter officers of the Public Health Service in the grade of Assistant Surgeon General (except those in charge of bureau divisions) shall be known and designated as medical directors. The limitation now imposed by law upon the number of senior surgeons and Assistant Surgeons General at large of the Public Health Service on active duty is hereby repealed.

(b) Hereafter the Surgeon General of the Public Health Service shall be entitled to the same pay and allowances as the Surgeon General of the Army; and a regular commissioned officer of the Public Health Service who serves as Surgeon General shall, upon the expiration of his commission, if not reappointed as Surgeon General, revert to the grade and number in the regular corps that he would have occupied had he not served as Surgeon General.

(c) The officer detailed as chief of the narcotics division of the Public Health Service shall, while thus serving, be an Assistant Surgeon General, subject to the provisions of law applicable to Assistant Surgeons General in charge of other administrative divisions of the Public Health Service.

SEC. 11. Hereafter the Secretary of the Treasury shall appoint, in accordance with the civil service laws, all officers and employees, other than commissioned officers, of the Public Health Service, and may make any such appointment effective as of the date on which the officer or employee enters upon duty: *Provided*, That any regulations which may be prescribed as to the qualifications as to the appointment of medical officers or employees shall give no preference to any school of medicine.

SEC. 12. Hereafter officers of the Public Health Service when disabled on account of sickness or injury incurred in line of duty shall be entitled to medical, surgical, and hospital services and supplies under such regulations as the Secretary of the Treasury may prescribe.

SEC. 13. Hereafter the advisory board for the Hygienic Laboratory shall be known as the National Advisory Health Council, and the Surgeon General of the Public Health Service, with the approval of the Secretary of the Treasury, is authorized to appoint, from representatives of the public health profession, five additional members of such council. The terms of service, compensation, and allowances of such additional members shall be the same as the other members of such council not in the regular employment of the Government, except that the terms of service of the members first appointed shall be so arranged that the terms of not more than two members shall expire each year. Such council, in addition to its other function,

shall advise the Surgeon General of the Public Health Service in respect to public health activities.

Approved, April 9, 1930.

EFFICIENCY OF WATER PURIFICATION PLANTS ON THE GREAT LAKES

The United States Public Health Service has recently issued a report on the efficiency of municipal water-purification systems located along the Great Lakes, from which approximately 10,000,000 people derive their water supply and into which the sewage and industrial waste of about five and one-half million population are discharged.¹ The report is based on a survey of 14 representative municipal water filtration plants situated on the Great Lakes and connecting waterways, including the plants of Detroit and Cleveland. The survey, which was made at the joint request of interested local and State authorities, was an extension of previous surveys of a similar nature made along the Ohio and other rivers of the Middle Western and Eastern States.

Owing to the great importance of the Great Lakes region from standpoints of population, commerce, and industry, the maintenance of safe water supplies along these Lakes constitutes one of the major water-purification problems of the country. With the increasing pollution of sources of water supply located in various marginal zones of the Lakes, this problem is becoming a more difficult one each year, taxing at present, in some instances, the resources of modern water purification.

The difficulties of obtaining safe purified water supplies from the Great Lakes are magnified considerably by the extreme variability existing in conditions of pollution of the lake waters at the several water intakes, which are located in or close to marginal zones of shore pollution, where water movements are subject to the vagaries of winds and countercurrents. In some instances the pollution of these zones probably is subject to seasonal variation, due to large increases in the sewered population residing along the Lakes during the summer vacation season.

A study of the performance of the 14 Great Lakes plants included in the survey revealed some interesting similarities and contrasts in the behavior of these plants, both among themselves and in comparison with purification systems of the Ohio type. Perhaps the most striking similarity observed was the existence, at practically every plant, of a well-defined relationship between the bacterial quality of the raw water, as delivered for treatment, and the cor-

¹ Studies of the Efficiency of Water Purification Processes. IV. Report on a Collective Survey of the Efficiency of a Selected Group of Municipal Water Purification Plants Located Along the Great Lakes. By H. W. Strocter. Public Health Bulletin No. 193.

responding quality of the effluent produced at each successive stage of purification. This same relationship, which is one of fundamental importance, had been noted previously in studies of water purification on the Ohio River and on other rivers.

The most important dissimilarity observed was the marked variability in average bacterial efficiency shown by the several Great Lakes plants among themselves and their disparity in this respect from Ohio River plants of the same general type. Among the Great Lakes plants, divergences in efficiency were indicated as being due in some cases to differences in the average density of raw water pollution and in certain features of plant design and operation. In other instances no reason could be assigned for the inequalities noted.

As regards the comparative bacterial efficiency of the Great Lakes and the Ohio River plants, the former were shown consistently to be slightly less efficient with chlorination included, and decidedly less efficient with chlorination excluded, than the latter group. Detailed analyses of the data failed to disclose the reason for these divergences, which do not appear to be explained, as currently assumed, by the relatively lower turbidity of Great Lakes water. It is suggested that they possibly may be due to differences in the chemical composition of the two waters, notably in the hydrogen-ion concentration.

From a study of the relationships observed between the bacterial qualities of the raw waters and effluents of the Great Lakes plants, and from an analysis of their variations, it was concluded, in so far as the production of final effluents conforming to the revised Treasury Department *B. coli* standard is concerned, that an average density of *B. coli* in Great Lakes raw waters, as delivered for purification, approximating an index of 4,500 per 100 cubic centimeters appears to represent an upper limit of permissible pollution, beyond which a majority of the Great Lakes filtration plants, as at present designed and operated, would be clearly overburdened. Mean densities ranging from 1,000 to 4,500 per 100 cubic centimeters represent a doubtful zone, within which some plants might be and others might not be overburdened for a significantly large proportion of the time. With average densities ranging below 1,000 per 100 cubic centimeters, the majority of such plants would not be expected to be overburdened except for a comparatively small proportion of the time.

Among the areas studied, the most highly polluted zone of the Great Lakes from which water is taken for purification was located at the extreme southern end of Lake Michigan, where existing purification systems are clearly overburdened. Other zones of relatively high, though not in all cases excessive, pollution were found to be at the extreme western end of Lake Erie, at the outlet of the Detroit River, and along the southern shore of Lake Erie between Cleveland and Sandusky.

As long as the supply for free distribution lasts, persons especially interested in the subject may obtain without charge a copy of the bulletin containing this report by addressing the Surgeon General, United States Public Health Service, Washington, D. C.

DEATH RATES IN A GROUP OF INSURED PERSONS

Rates for Principal Causes of Death for February, 1930

The accompanying table and comment are taken from the Statistical Bulletin for March, 1930, issued by the Metropolitan Life Insurance Co. The table presents the mortality record of the industrial insurance department of the company for February, 1930, as compared with the preceding month and with the corresponding month of last year. It also gives the cumulative rate for January and February of the present year. Death rates are given for the principal causes of death. They are based on a strength of approximately 19,000,000 insured persons in the United States and Canada.

The bulletin states:

The exceptionally favorable health conditions which prevailed in January of this year have continued during February. The February death rate of 9.6 per 1,000, among the 19,000,000 industrial policyholders of the company is, with a single exception (9.5 in 1928), lower than ever before recorded for this group during the second month of the year. The cumulative death rate for the January-February period was only 9.5 per 1,000, marking a decline of 23.6 per cent as compared with the like period of 1929.

Every disease, except scarlet fever, listed in the table had a lower death rate during the January-February period than in the like part of last year; and in nearly every instance the gain was large. Considerable improvement was to be expected, of course, as last year's influenza outbreak caused inordinately high mortality, not only from influenza and pneumonia, but from chronic diseases in cases where influenza hastened death. Comparison with two years ago, nevertheless, also shows lower death rates this year than were then registered for most of these diseases.

The cumulative cancer death rate this year (73.8 per 100,000) is noteworthy. It may be compared with 77.7 in 1929 and 76 in 1928. No false optimism should arise from this small drop; it may have no significance whatever. On the other hand, those who have been watching year after year for any favorable item in connection with the rising death-toll from cancer will await the figures for the next few months with keen interest; for this is the first time in a long series of years when the cancer mortality figures have afforded any basis whatever for the hope of a break in the persistently rising death rate.

The only bad spot in the mortality record of early 1930 is automobile fatalities. At the end of February, the death rate for this cause was 18.4 per 100,000. The winter months are the very ones when we expect the lowest mortality of the entire year from this cause of death; but the winter automobile death rate this year has run almost as high as that for the peak months only two or three years ago.

Death rates (annual basis) per 100,000 for principal causes of death, February, 1930

[Industrial department, Metropolitan Life Insurance Co.]

Cause of death	Death rate per 100,000 lives exposed ¹				
	February, 1930	January, 1930	February, 1929 ²	Cumulative, January-February	
				1930	1929 ³
Total, all causes	963.8	940.1	1,135.6	951.3	1,245.2
Typhoid fever	1.3	1.1	.8	1.2	1.4
Measles	3.3	2.1	4.2	2.7	2.6
Scarlet fever	3.9	3.8	3.4	2.8	2.8
Whooping cough	5.5	4.5	7.2	5.0	8.3
Diphtheria	9.0	10.9	9.8	10.0	11.7
Influenza	27.3	26.2	104.4	26.7	153.3
Tuberculosis (all forms)	82.3	79.7	94.0	80.9	94.6
Tuberculosis of respiratory system	71.9	69.8	84.5	70.8	84.6
Cancer	73.1	74.4	74.3	73.8	77.7
Diabetes mellitus	20.2	22.3	22.2	21.3	25.3
Cerebral hemorrhage	68.2	59.3	66.0	63.5	67.2
Organic diseases of heart	169.0	161.3	181.0	165.0	192.2
Pneumonia (all forms)	117.2	108.8	160.4	112.8	187.8
Other respiratory diseases	11.8	13.2	22.0	12.6	24.2
Diarrhea and enteritis	11.1	11.6	13.7	11.3	14.0
Bright's disease (chronic nephritis)	71.0	73.7	79.5	72.4	82.7
Puerperal state	14.4	12.0	14.7	13.1	14.8
Suicides	7.5	8.6	8.0	8.1	8.4
Homicides	5.5	7.0	6.8	6.3	6.8
Other external causes (excluding suicides and homicides)	58.7	61.3	55.5	60.1	58.9
Traumatism by automobiles	18.4	20.2	12.6	18.4	15.3
All other causes	203.5	198.4	207.6	200.8	209.1

¹ All figures in this table include infants insured under 1 year of age.² All 1929 death rates subject to slight correction, as they are based on provisional estimate of lives exposed to risk³ Rate not comparable with that for 1930.**SEAMEN WITH VENEREAL DISEASE IN THE PORT OF NEW YORK**

A COOPERATIVE STUDY MADE BY THE AMERICAN SOCIAL HYGIENE ASSOCIATION, THE NEW YORK TUBERCULOSIS AND HEALTH ASSOCIATION, THE WELFARE COUNCIL OF NEW YORK CITY, AND THE UNITED STATES PUBLIC HEALTH SERVICE

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CHAPTER VI**SOCIAL FACILITIES FOR SEAMEN IN THE PORT**

Various organizations provide the social facilities available in the port of New York for seamen and harbor workers, including under these terms workers in foreign, coastwise, and intercoastal services as well as those on inland waters, the classification for harbor services employed by some of the unions. The agencies concerned may be grouped as (1) philanthropic and governmental institutions established primarily for the benefit of seamen; (2) seamen's unions and benefit associations; and (3) organizations whose work has been of direct

¹ The complete report will be issued later as a separate publication as Reprint No. 1365.

benefit to seamen, although service to seamen is only one phase of their activities, and perhaps an incidental one.

Steamship companies do not carry on welfare activities in port on behalf of their employees. The attitude of the companies seems to be that when a seaman arrives in port on completion of a voyage and is signed off, their responsibility for him ceases until such time as he may be signed on again for another voyage. A few of the companies have well organized medical departments which assure that a seaman who becomes ill in the company's employ is receiving proper medical treatment in hospital or otherwise, and one company, at least, has a system of sick benefits. Some of the foreign steamships have formed athletic clubs for their men, and the various clubs have engaged in competitions arranged by themselves or by the seamen's agencies. Any responsibility beyond this is left for the seamen's philanthropic agencies to assume.

PHILANTHROPIC AND GOVERNMENTAL ORGANIZATIONS

There are some 30 organizations in Manhattan, Brooklyn, Staten Island, Ellis Island, and Hoboken—all included within the port of New York—which care for the needs of merchant seamen who are on shore on leave, or discharged and without another berth, or who are undergoing medical treatment. Most of these bodies are concerned particularly with the seaman while on shore, but others follow him on board ship, supply "comfort bags" and individual bundles of magazines when he is about to embark, and provide loan libraries for ships and equipment for games and sports. Some agencies help to support seamen's "homes" in other ports of the United States and in foreign countries.

The lodging of seamen by welfare agencies was in answer to the need of protecting these men from becoming victims of the "crimping" system of the sailor lodging house. This system has been referred to in Chapter V.⁹

It is not known what percentage of the seamen who arrive daily in the port of New York are in need of the services available through the seamen's agencies. Seamen are ordinarily rovers and lacking in community relationships, but some of them have their homes in the city and a few of those who are married have their families here. Others have resources of their own and prefer to be wholly independent. During the time foreign ships are in port for unloading and loading, the men sleep on board; and while they have no need for the sleeping accommodations offered by the institutions for seamen, they may make use of other facilities. A large proportion of seamen on American ships are discharged and paid off within 48 hours of the docking of the ship, and many of these stay ashore for some days

⁹ See PUBLIC HEALTH REPORTS for April 18, 1930, p. 871.

either by choice or because they can not find another ship. The cargo vessels may take some weeks to unload and load. Few, if any, except the officers are kept on board during this time, and a number of the crew seek the lodgings as well as other facilities provided by the seamen's agencies. The services of the agencies are particularly advantageous to seamen out of work or undergoing out-patient treatment.

Services offered.—Table 38 sets out the various services offered to merchant seamen by agencies in the port. The agencies are listed alphabetically, the services in order of frequency, and a check indicates that the agency offers that particular service.¹⁰ The situation of these agencies is to be seen on the map at the beginning of the report. For a more detailed description of purpose, clientele, and services than is given in this chapter the reader is referred to the annual *Directory of Social Agencies* and to the *Seamen's Handbook for Shore Leave*, issued in 1928 by the American Merchant Marine Library Association. This latter volume is of pocket size and contains material which is of special interest to merchant sailors, including facts about hotels, seamen's homes, or other organizations having sleeping accommodations and recreational facilities; location of American consulates; addresses for legal, medical, surgical, and dental aid; shipping agencies; seamen's unions; public libraries; and offices and agencies of the American Merchant Marine Library Association, as well as places of amusement and the most interesting sights to be seen in or near the various ports. Information is given with reference to 352 seaports, representing practically every country in the world. Seven pages are devoted to the port of New York.

Three of the seamen's agencies listed in Table 38—the American Seamen's Friend Society, the Merchant Seamen's Branch of the Young Men's Christian Association, and the Seamen's Christian Association—are to merge and erect a million dollar Merchant Marine Memorial Building at Eleventh Avenue and Twentieth Street. The building as described is to be ready for use in 1930 and will contain 500 or more separate bedrooms with complete facilities for carrying on all the local recreational, educational, and religious work of the three agencies concerned.

¹⁰ The *Directory of Social Agencies*, the *Seamen's Handbook for Shore Leave*, and the agencies themselves were consulted to make the chart as accurate as possible.

General description of agencies.—These seamen's agencies range in size from the small religious mission, with perhaps a reading and writing room attached, to a 13-story building which houses the numerous and varied activities of the Seamen's Church Institute, said to be the largest institution for seamen in the world. Some have meager equipment and limited financial resources. Almost without exception the agencies consider some religious activity essential in their work for the men "who go down to the sea in ships."

Many have been in existence for long periods of time, and at least two—the American Seamen's Friend Society and the New York Port Society—were founded more than a hundred years ago.

While most of them are open to any active seaman who wishes to avail himself of their services, others serve a particular clientele, and a Danish, Dutch, Finnish, German, Norwegian, or Swedish seaman on shore in New York on leave can find a center where his fellow-countrymen congregate and his own language is spoken. This type of seamen's mission or home ordinarily centers around a seamen's church, with other activities subordinated to the religious services. For some, as, for example, the Norwegian Seamen's Church, support comes in part from a church in the old country.

These seamen's institutions exist particularly for the ordinary seaman. Officers are likely to have greater resources of their own, though some of the seamen's agencies have rooms especially reserved for officers. There are modest club rooms for officers at one or two of the seamen's unions.

Many boys, it is said, have been forced into sea work since the war, especially in England, because of employment conditions there. Four agencies in particular maintain activities for boys, both apprentice boys and those from 14 to 17 years of age who serve as cabin or messenger boys on freighters and as bell boys and deck boys on the great liners. The British Apprentice Club, which is a memorial to Walter Hines Page, was established for apprentices of the British merchant marine; a social room at the Seamen's Church Institute is set apart for apprentices of any nationality; the Toq-H Club for Scagoing Boys exists for British boys and Belgian boys on British ships; and the merchant seamen's branch of the Young Men's Christian Association has a department for the bell boys and deck boys which seeks "to give healthy amusement and better employment of their holiday hours ashore."

While a moderate charge is made for some services—for beds, meals, checking of baggage, etc.—most of the facilities are offered free, and support for them must be sought from the public. A few agencies are fortunate in the possession of endowment funds. Others are supported by mission boards or other religious organizations as a part of their home missionary program. In the case of at least one

of the homes for foreign seamen, as has been mentioned, a portion of the support comes from a church abroad.

Steamship companies contribute toward the support of several agencies. This is done partly as an indirect payment for service rendered by the agency's employment office in providing crews for the company's ships and partly in recognition of the benefit received when, after shore leave, many of the seamen return more fit because of the good entertainment and wholesome relaxation provided than would otherwise be the case. Officers of several of the agencies engaged in work for seamen have testified that despite the "speak-easies," conditions along the water front have greatly improved in recent years. They ascribe this in part to the closing of the saloons which in the old days lined the streets near the docks.

Magazines are published which describe and interpret the work for seafaring men to donors and others interested, for example, *The Sailors' Magazine and Seamen's Friend*, published by the American Seamen's Friend Society (first issued in 1828), *The Harbor Notes*, published by the Merchants' Seamen's Branch of the Young Men's Christian Association, and *The Lookout*, published by the Seamen's Church Institute.

Through the years a large body of donors has been built up for these seamen's agencies.¹¹ There is an appeal to many in providing a home in port, perhaps in a strange land, for members of a group who, by the very nature of their calling, are often homeless. The patriotic motive plays its part with others, for they regard the agencies as helping toward the creation of a more efficient personnel in "an American merchant marine, manned by American seamen, and maintained under the American standard." And others, interested in international good will, support the hospitality extended foreign seamen in American ports as an interpretation to these men of the spirit and ideals of America.

Patronage of agencies by patients studied.—The assertion is sometimes made that seamen do not need and do not use the seamen's agencies, but prefer to depend upon their own resources. The questionnaire study seems to indicate a rather extensive use. The seaman's address at the time he was admitted to hospital was recorded. For the 102 aliens included, the 60 members of the United States Coast Guard, and the 10 men of the miscellaneous group who were in other services of the United States Government, the address given was naturally their ship. Of the 789 others, 297, or 38 per cent, gave a seamen's agency as their address—"25 South Street" (the Seamen's Church Institute) for 259, and 11 other agencies for 38 more. Those who gave other addresses may, of course, have made use of a seaman's agency, though the fact was not indicated on the record.

¹¹ Data on financial trends will later be available in the Income and Expenditure Study being carried on by the Welfare Council.

This was undoubtedly true, for example, in the case of the Holland Seamen's Home, which is situated across the street in Hoboken from the piers of the Holland-America Line. The men sleep on board and receive mail at the docks while in port, but go to the Home to write letters and read the Dutch newspapers. A similar situation exists in Brooklyn in connection with some of the agencies for foreign seamen.

DESCRIPTION OF CERTAIN SERVICES

An enumeration of the facilities available to the seaman at moderate cost or free shows how fully those concerned with his welfare while on shore have tried to meet his various needs. In these institutions he can find a clean bed in a dormitory or in a single bedroom or can be directed to a recommended rooming house; bathing facilities, a place to wash his clothes, barber shop and tailor shop; well-prepared meals at reasonable cost; club rooms; a reading room with books, magazines, and home papers; a writing room with stationery at hand; a baggage room for his dunnage bag; a check room for money and other valuables; a place to receive his mail; facilities for banking and for sending money home; a free employment office for jobs on sea or on land; religious services; a "slop chest" for supplies; aid and attention if sick; entertainment and recreation in the way of movies, lectures, concerts, games, and athletics, and excursions to places of interest. If he is sick in a hospital, he will be visited; if shipwrecked, he will be outfitted anew; if stranded, he may borrow money for bed, meals, or clothing, or, because, perhaps, he has been ill and is as yet **unable** to work, these may be provided without charge.

A regularly established social-service department in the larger institutions or some one person in the smaller agencies will help him with his personal problems. If these involve recourse to the law, he is referred to the Legal Aid Society, which has a special department for seamen and which charges only nominal fees. If he is old and decrepit and can no longer work, he may be able to secure admission to Sailors' Snug Harbor and pass his days there in comfort and peace. If he dies in the port without means or friends, a pauper's grave does not await him, for at least three of the agencies maintain sailors' plots where he may be buried.

A description follows of some of the most important facilities or unusual services, the nature of which might not be clear from the captions in Table 38.

Sleeping accommodations.—Sleeping accommodations available for seafarers through the seamen's agencies have been shown in the table which indicates the various services offered. Omitting figures for Sailors' Snug Harbor and for the hospitals, beds for transients number 2,379. Sixty additional beds were available previous to the closing

of the dormitory at the merchant seamen's branch of the Young Men's Christian Association in June, 1929.

Charges for these beds range from 35 cents to a dollar a night, according as they are situated in a dormitory or single room. Some rooms are reserved for officers. The average single room is clean, of fair size, and contains bed, chair, table, and locker. Many prefer single rooms to the dormitory provision and constantly ask for some privacy and comfort. The sailors' attitude is indicated by one of them: "I am always glad when my duties bring me to New York, for I know how comfortable I shall be. Your Sailors' Home there is just about right. We think of it as if it was our own home, for it is not too small and not too large. It's quiet at night, and a man can always get his own little room. Perhaps you don't realize all that means to the sailor who has no privacy while on board his ship. * * *"

Rooming houses and hotels for seamen in New York City are licensed under an old act, passed in the days of sailing vessels, which sets up a State Board of Commissioners for Licensing Sailors' Hotels and Boarding Houses in the city of New York. The law makes it unlawful to conduct a sailors' boarding house or hotel in New York City without a license from the board of commissioners created by the act. The license fee is \$25 a year. The board serves in a voluntary capacity but employs one inspector, and any amount above the expense of transacting the business of the board is refunded to the seamen's agencies named in the act, to be used "for the relief of shipwrecked and destitute seamen." Formerly licenses were granted to over 100 houses a year, but for the year May, 1929, to May, 1930, there were 48. A list of the houses licensed is filed in the office of the city clerk.

New Jersey has no State inspection for such rooming houses, but the agencies in Hoboken operate under a city license.

Legal aid.—Knowledge of maritime affairs enables many of the agencies to give seamen advice or assistance in questions of immigration and naturalization, in filling out necessary legal forms or in furnishing affidavits for them, in collecting money due for wages or as compensation for accidents, and other matters of a similar nature.

For more difficult questions, the Legal Aid Society (organized to "render legal aid gratuitously, if necessary, to all who may appear worthy thereof and who are unable to procure assistance elsewhere, and to promote measures for their protection") maintains a department wholly devoted to legal work for seamen. During 1928, 3,362 seamen applied to this seamen's branch for aid. Many of the applicants came only for advice and information, but others required actual assistance in matters of wages, discharges, recovery of personal property or money stolen or taken under false pretenses, etc. Sea-

men in need of the services provided by social agencies were referred to the appropriate organization.

A retaining fee of 25 cents is made, and when collections exceed \$5, 10 per cent is retained as commission. This meets the expense of the office only in part and the society is dependent upon voluntary contributions for the remainder.

Hoboken also has a legal-aid society to which the Hoboken agencies refer cases, especially those involving New Jersey laws.

Ships' libraries.—For many years libraries have been placed on American merchant ships, both sail and steam, for the free use of their crews. The boxes of books, when put on board ship, are in the custody of a volunteer librarian and are exchanged for another selection when the ship touches at another port where libraries can be obtained. At present two organizations in the port of New York are engaged in this work: These are the American Seamen's Friend Society and the American Merchant Marine Library Association, sometimes known as the "Public Library of the High Seas."

The American Seamen's Friend Society has placed loan libraries on American merchant ships since 1859. In the year ended April, 1929, it sent 263 of them out from the port of New York. The total number of new libraries issued was then 13,234. Each library box contains about 40 new well-selected books and is put in good condition for each reshipment.

During 1928 the American Merchant Marine Library Association, which was formed in 1921 to continue and develop the library service to the men of the merchant marine which was started and maintained during the war by the American Library Association, circulated about 306,030 books among 1,738 ships. Its boxes contain 70 books each, and there are 12 dispatch offices in various ports, where the dispatch agent in charge visits ships and exchanges libraries.

Sailors' Snug Harbor.—Seamen's wages, like those of most other workers, are insufficient to provide a competency for old age. But the last home port for some 900 destitute men who have followed the sea has been made a place of peace and comfort and self-respect at Sailors' Snug Harbor. It is described as the "best equipped home for aged seamen in the world."

This institution was founded by Capt. Robert Richard Randall, of New York, who, in 1801, bequeathed his entire estate for the establishment and maintenance of a home for aged, decrepit, and worn-out sailors as soon as the income should be sufficient to support 50 seamen. The estate consisted of a farm of 21 acres between what is now Fourth and Fifth Avenues and Sixth and Tenth Streets, with an apple orchard where Washington Square is now located. There was long litigation, and then increasing property values made it unwise to carry out the plan of erecting the institution on the

city property. A farm of some 130 acres on the northern shore of Staten Island was purchased in 1831 for \$6,000, and the first sailors were received into the home in 1833. Now there are more than 30 buildings, the grounds are well cared for, and the general impression given by the central building, dining halls, dormitories, chapel, recreation building, and hospital is that of a fine college campus.

"Aged, decrepit, and worn-out sailors," incapable of self-support are eligible for admission. The trustees have interpreted this to mean that the sailors must have served practically a lifetime at sea and show discharges for at least 5 years of service under the American flag, if native-born, or 10 years if foreign-born.

Admission to Sailors' Snug Harbor is reported to be difficult because of the records that have to be filled out to prove sea service before an applicant is considered. Many seamen do not have the necessary discharge papers, and to locate the records of their discharges at offices of the United States Shipping Commissioners or to secure certified statements of such service is an involved process. The agencies help in this and are strongly of the opinion that information should be disseminated among seamen as to requirements for admission to Sailors' Snug Harbor and the importance of retaining all discharge papers. The "continuous discharge," mentioned in Chapter V, would prove of value.

Seamen not eligible for Sailors' Snug Harbor may be referred to the information bureau for the aged at the Welfare Council to learn of other homes for which they might qualify. Some of these homes are free and while, generally speaking, the residence requirements are not strict, the men may encounter various obstacles in the way of admission.

Missing men.—New York City is said to be "the greatest port of missing men in the world." The seamen's agencies in this port receive large numbers of letters from mothers, wives, or sweethearts of seafarers not heard from in years. The writers of these letters, resident in other parts of the United States or in foreign countries, by some means have learned the name of a seamen's home in New York and write to implore news of the missing sailor who, they fear, may have been drowned. Sometimes the letter reports that an inheritance awaits him.

Some of these missing men have delayed writing home until ashamed to write, and then the months and years have gone by. Sometimes the delay has come through sickness or hard luck. Some men have grown tired of supporting their families. Others have deserted their ships and are fearful of trouble if their whereabouts should become known.

The seamen's agency makes inquiry for the man, posting on the bulletin board his name and photograph, if that has been forwarded

with the letter, including his name in the list for whom there are "letters waiting," and even advertising for him in most likely newspapers. Other seamen who come from the same town or who have at some time sailed with him take up the search. The Seamen's Church Institute publishes a monthly bulletin giving the names of missing men and distributes this bulletin in consulates, shipping offices, and seamen's homes in some 250 ports of the world.

In 1928, of 520 missing men inquired for at the Norwegian Seamen's Church, 380 were found, and over a period of 12 years 2,301 men out of 4,313 reported missing were located. One man who had not written home in 24 years was recently found. Similarly, in the 10 years ended with 1929, the Seamen's Church Institute located 3,160 men.

Shipwrecked crews outfitted.—The rescue, in November, 1928, by the *American Shipper* of some of the passengers and crew of the *Vestris* brought vividly to the fore the plight of the shipwrecked. The Seamen's Church Institute, at the expense of the steanship company, cared for and outfitted the survivors of that crew. A special dormitory and reading and writing room were set apart for their use that they might be protected from the curious.

Individual sailors who have been shipwrecked and have lost all their possessions are equipped anew by the relief departments of several agencies in the course of their regular work. The expense of outfitting a whole crew, however, is too great a tax on the resources of most of them. Such catastrophes are fortunately few in number, but when the need does arise four different agencies in the port stand ready to meet it. Some amounts "for the relief of shipwrecked and destitute seamen" come from the surplus funds of the State Board of Commissioners for Licensing Sailors' Hotels and Boarding Houses.¹²

Lost and found department.—A seaman's papers are very valuable, since they form part of the record necessary to establish the right to free hospital treatment, naturalization, admission to Sailors' Snug Harbor, and other benefits. A lost-and-found department is maintained at the Seamen's Church Institute, where seamen's papers that have been lost and returned await their owners. Over 1,500 sets are on file at all times. The institute distributes to seamen folders for their papers with the address "25 South Street" upon them, and this has greatly helped in recovery of lost papers. When papers are returned, the owner is notified by a postcard sent to the post office at the Institute. Papers lost nine months before in Richmond, Va., were discovered recently on file at the Institute.

While other seamen's agencies naturally care for a man's papers that have been returned to them, the Seamen's Church Institute is the only agency maintaining such a department. Its value to seamen

¹² See pp. 934-35.

would obviously be enhanced if the seamen's agencies were to unite in this service so that all lost papers would be returned to the one address.

COOPERATION AMONG SEAMEN'S AGENCIES

Joint Conference for the Promotion of the Interests of Seamen.—The first effort for united action by the various societies working for seamen in the port of New York was the Joint Conference for the Promotion of the Interests of Seamen. The original minutes of that conference (now in the possession of the Rev. Dr. A. R. Mansfield, superintendent of the Seamen's Church Institute) record the following resolution as adopted at the organization meeting in January, 1897, by representatives from the New York Port Society, the Protestant Episcopal Church Missionary Society for Seamen (now the Seamen's Church Institute of New York), the American Seamen's Friend Society, the Marine Society, the Maritime Association, and the Christian Endeavor Seamen's Bethel Society:

Whereas it seems desirable to improve the condition and add to the protection of seamen in the port of New York and to obtain from the present sessions of Congress, the legislature at Albany, and the Charter Commission, and from the existing municipal administration such legislative and administrative action as shall best promote that object; and

Whereas there is much work that can be done by joint action on the part of the several societies for the benefit of seamen on the legislative side, without touching the religious, denominational, and individual work of the several societies, respectively, and in such manner as to avoid overlapping and waste of energies; and

Whereas it is desirable to promote the formation of a joint conference of delegates from the several societies, organized for the purpose of investigation and such action as may be duly authorized:

Resolved, That the delegates to this conference upon matters pertaining to the port of New York hereby agree to form a Joint Conference for the Promotion of the Interests of Seamen.

The conference continued for some two and one-half years and then was discontinued because the societies did not agree on aggressive action to remedy social and economic abuses to which the seamen were subjected. During that period the minutes record activities of committees on Federal and State legislation, municipal and harbor protection, and the regulation of sailor boarding houses, grievances and legal aid, hospital and other relief, and school for navigation and free labor bureau for the shipment of seamen.

Joint Conference of Allied Societies for Seamen.—The next cooperative undertaking among the agencies working for the welfare of seaman was the Joint Conference of Allied Societies for Seamen in the Port of New York, organized in 1915. The Rev. George S. Webster, D. D., has been secretary almost since its formation. The conference has arranged for an annual sailors' day service in one of the Protestant churches of the city, and 14 of these annual united services for seamen have been held.

Among its special committees was the seamen's protective committee, appointed in 1921 to consider the acute problems of unemployment. It cooperated with the city in plans for a municipal lodging house for seafaring men on one of the piers at South Ferry. During 1922 and 1923 its committee on water-front conditions brought to the notice of the Federal and local authorities various dangerous conditions confronting seamen when they are ashore. This united effort enlisted cooperation from several public officials.

Seamen's Service Conference.—The Seamen's Service Conference of the Port of New York was an outgrowth of the Joint Conference of Allied Societies for Seamen, several of its founders having been members of the committee on water-front conditions. This conference was organized in 1924 with a membership of 16 agencies and with the Rev. George A. Green, at that time connected with the Seamen's Church Institute, as chairman, and Miss Madeline Oldfield, of the hospital service section of Hudson Street Hospital, as secretary. Discussions and activities centered mainly around questions of the rights of seamen (wages, compensation for injuries, etc.), naturalization, legislation, recreational possibilities, and shelter and employment for seamen under treatment for venereal disease.

The conference in 1926 issued the leaflet "Essential Information to Seamen" for distribution by the organizations in its membership.

When the Welfare Council of New York City was organized, the member agencies of the conference served as the nucleus for its Seamen's Section.

Seamen's Section of the Welfare Council.—The seamen's section of the Welfare Council of New York City is at present the organization for discussion and joint action in the interest of seamen. Organized in February, 1927, it now includes 22 agencies. Mr. John T. Little, of the seamen's branch, Legal Aid Society, was the first chairman, and he was succeeded by the Rev. James C. Healey, of the Sailors' Home and Institute. Miss Adaline A. Buffington, of the Welfare Council, has been secretary since its inception.

The problems the section has been facing are those with which the Seamen's Service Conference was earlier concerned. For some, more satisfactory answers have been obtained and others are still unsolved. Many of these involve relations between the shipowners or operators and the seamen, and the section is hopeful of working out a closer connection between the shipowners and the organizations serving seamen.

The discussions of the section in its two and a half years of existence, both in meetings of the section as a whole and of committees, have concerned seamen in relation to employment for the able-bodied and handicapped, legislation, venereal disease, recreation, housing, publicity, relief-giving practices among the seamen's agencies, use

of the social service exchange, care of Spanish and negro seamen, and rehabilitation of the disabled. The section has held joint meetings with two other sections of the council on the question of unemployment. It worked out plans of cooperation between the social service departments of the marine hospitals and the other seamen's agencies. It cooperated with the Neptune Association in 1928 in providing a field day for seamen. It has compiled a handbook of information for the use of seamen's agencies. And, not least, it promoted plans for this study of seamen with venereal disease in the port of New York.

Use of social service exchange.—Many seamen and so-called seamen go from one agency to another in search of assistance or quite legitimately become clients of more than one agency. To deal wisely with these men requires that there should be exchange of information and cooperative action made possible through use of the social service exchange. The Seamen's Service Conference initiated the effort to have seamen's agencies register their relief cases with the exchange and inquire of it before giving relief. In that way each could ascertain whether some other agency was already interested in that particular seaman and could work out the wisest plan for the man and place the responsibility for giving aid.

The desirability of all agencies making use of the exchange was constantly urged in meetings of the conference and later in the Seamen's Section. In 1928, seven agencies of the section had used the exchange to the extent of 1,502 inquiries, more than three-quarters of them by the three marine hospitals. There were 261 of these cases identified as being previously known to another agency, and 147 notifications were later sent to the registering agency that another had inquired regarding the same man.

During the study of the 961 men it was the plan to register all the cases with the exception of certain seamen at Ellis Island Hospital—aliens, men in the Coast Guard Service, and the small miscellaneous group of those in other branches of Government service. This eliminated 172 from the 961 cases studied. There were 8 others also which for some reason were not cleared. The workers on the study devised their own system of clearance between the marine hospitals. Table 39 gives the result of this clearing as it concerned other agencies than the marine hospitals.

TABLE 39.—*Use of social service exchange*

Use	Number of cases
Total.....	961
Cleared.....	781
Known to other agencies.....	56
Not known to other agencies.....	725
Not cleared.....	180

Out of a total of 781 cases cleared, only 7 per cent were identified as having been known to other of the seamen's agencies than the marine hospitals. It is conceded that the use of the exchange by the seamen's agencies has made little headway and this low percentage of identification is undoubtedly due to the fact that few of the seamen's agencies register their cases regularly. It may, of course, also be true that the particular men inquired for had not been clients of other agencies.

Some of the agencies are looking forward to the time when there may be an interport exchange of information, but realize that not until the social service exchange in New York is used to a greater extent can they hope to clear cases having their origin in other cities.

SEAMEN'S UNIONS AND BENEFIT ASSOCIATIONS

Seamen's unions and benefit associations form a second group of organizations to be considered in any description of the social facilities for seamen in the port of New York. At the present time there are 18 seamen's unions and benefit associations in the port, 6 of these being locals of one union. These 18 organizations are listed in the accompanying tabulation. A few unions, such as the union which included the ship radio operators, have been disbanded in recent years.

These organizations are of various types. One group is composed of unions affiliated with the American Federation of Labor, while a second group is made up of independent organizations with no national or international affiliation, although one of these has branches in other cities of the United States. Unions of this group frequently have benefit features. Most of these independents were formerly affiliated with the American Federation of Labor, but for different reasons have formed their own organizations, variously described as "dual," "outlaw," or "scab" unions. The American Steamship Licensed Officers' Association is a company union. Employers and employees have equal representation on its managing board. The Associated Marine Workers and the Marine Workers League are industrial unions. The former is open to all harbor workers and the latter to any worker in the marine industry, including longshoremen. It is affiliated with the Trade Union Unity League (the reorganized American militant organization formerly known as the Trade Union Educational League) and the Red International Trade Union in Moscow.

Much of the disunity among the seamen's organizations in the port of New York dates from strikes in 1919, 1920, and 1921. These involved, among others, workers on harbor vessels, on railroad tugs and ferries, and captains, engineers, and seamen on ocean-going vessels. From the bitterness aroused at this time by jurisdictional and internal

disputes, some of the groups, dissatisfied with the old-line union policies, broke away and set up various independent organizations; mainly of the benefit-association type.

As a rule the unions are divided into two main groups—seamen (on ocean and coastwise vessels) and harbor workers; but, as previously noted, both of these groups are entitled to the benefits of the Public Health Service.

The basis of organization is usually the department of the ship in which the men are employed. There are unions of employees of the deck department, engine room, and steward departments. The masters and officers are organized in separate unions from those of the men; but in the case of the industrial union for all workers in the marine industry and the union for harbor workers, no distinction between officers and men is made, and all are members of the same union. Colored men are admitted to membership in some of the unions. The National Marine Cooks and Stewards Association is composed entirely of colored men.

These unions and benefit associations generally have very modest quarters. They offer a considerable variety of services to their members and almost without exception stress the fact that these services are available through their own efforts and are not provided for them by any philanthropic organization. Some union officials state that their members do not need and do not make use of the philanthropic agencies. Among the services or facilities are reading rooms with billiard and pool tables at the offices of some of the organizations. A few care for the men's baggage. Certain unions hold regular meetings, but others meet only at times when matters of such particular interest as agreements on wages and conditions of work are to be discussed. Several of the unions pay sick and death benefits. Most of them serve as employment offices and refer officers or men on the request of the shipping companies. The unions often take up collections among the membership for needy brothers. The Associated Marine Workers gives particular attention to protecting the interests of its members in cases to be tried before the United States Steamboat Inspection Service, when, for example, a collision has taken place and a member's license may be revoked. Several have publications, issued from the national headquarters, such as *The Neptune Log*, *The Seamen's Journal*, *The Marine Engineers' Journal*, and *The Marine Workers' Voice*.

Fishermen form a special group in that they must be masters of two callings. Not only must they be sailors and know how to manage boats—and the shoal waters where fish are found are dangerous waters—but they must also be skilled in the work of catching, dressing, and handling fish. The Fishermen's Union of the Atlantic, which has headquarters in Boston and locals along the Atlantic coast, has one local in New York. A considerable movement takes place

from port to port among the fishing boats, according to the type of fishing. Boats from New York often put into other ports and boats from other harbors frequently call at New York. This is especially true of the fishing vessels composing the mackerel fleet.

The Fishermen's Union of the Atlantic publishes an Official Reference Book, listing "all fishing vessels on the Atlantic coast." The book for 1928 enumerates vessels in American ports along the Atlantic coast from Galveston, Tex., to Southwest Harbor, Me., and seven Nova Scotian fishing ports as well. One hundred and fifty vessels are listed for New York City. They range in size from the occasional small boat operated by one man to the steam trawler with a crew of from 15 to 27. Such a vessel will be differently manned for various kinds of fishing.

In New York, as elsewhere, the fishermen ordinarily own shares in the enterprise and participate proportionately in the earnings. Some captains own their boats, while others hold a share, with the remainder owned ashore. Five or six shares is the usual number for the fishing boats.

The big boats from New York go out some 200 miles before reaching their first fishing grounds on Georges Bank beyond Nantucket Island. The other fishing banks lie farther on; Grand Banks, off Newfoundland, is more than 700 miles away. Cod, haddock, and halibut are the principal fish caught off these banks. The mackerel fleet begins in the spring to work north along the coast from Hatteras to Massachusetts Bay. The small boats fish mainly for lobsters, bluefish, mackerel, and shellfish.

It is impossible to make any estimate of the membership of these organizations. Only in a few instances were the union or benefit association officials able and willing to report the number of members. Some of the unions retain on their rolls men formerly employed as seamen but working on shore, and so a membership figure, even when available, does not indicate the number actively engaged as seamen or harbor workers.

SEAMEN'S UNIONS AND BENEFIT ASSOCIATIONS IN THE PORT OF NEW YORK

SEAMEN (OCEAN AND COASTWISE SERVICES)

Masters and officers—

Masters and deck officers:

American Steamship Licensed Officers' Association.¹³ 15 Moore Street.

Masters, Mates and Pilots of America.¹⁴ 24 Moore Street.¹⁵

Local No. 88.

United Local No. 1.¹⁶ (Includes harbor workers also.)

Neptune Association.¹³ 82 Broad Street.¹⁵

¹³ Independent organization.

¹⁴ Affiliated with American Federation of Labor.

¹⁵ National headquarters.

¹⁶ Affiliated with standard railroad brotherhoods.

Masters and officers—Continued.**Engineers:**

- Marine Engineers Beneficial Association, No. 33.^{13 16} 233 Broadway.
- National headquarters, Washington, D. C.
- Ocean Association of Marine Engineers.¹³ 15 Whitehall Street.

Men—**Deck department:**

- Eastern and Gulf Sailors' Association.^{14 17} 26 South Street. National headquarters, Boston, Mass.
- Fishermen's Union of the Atlantic.^{14 17} 70 South Street. National headquarters, Boston, Mass.

Engine room:

- Marine Firemen, Oilers and Watertenders' Union of the Atlantic and Gulf.^{14 17} 70 South Street.¹⁵

Steward department:

- Eastern and Gulf Marine Cooks and Stewards' Union.¹³ 339 Spring Street.
- Marine Cooks and Stewards' Union of the Atlantic and Gulf.^{14 17} 61 Whitehall Street.¹⁵
- National Marine Cooks, Stewards, Head and Side Waiters' Association.¹³ 339 Spring Street.

HARBOR WORKERS**Masters and officers—**

- Masters, Mates, and Pilots of America.¹⁴ 24 Moore Street.¹⁵
- Apprentice Local No. 1.¹⁶
- United Local No. 1. (Includes ocean and coastwise workers also.)
- Local No. 3.¹⁶ 162 Cator Avenue, Jersey City, N. J. Composed of railroad workers on harbor boats.
- Local No. 49. 48 Hazelton Avenue, Newark, N. J.

Masters, officers, and men—

- Associated Marine Workers.¹³ 119 Broad Street.

ALL MARINE WORKERS

- Marine Workers Leaguc. 28 South Street.¹⁵ Industrial union including seamen and harbor workers. Affiliated with Trade Union Unity League in New York and with Red International Labor Union in Moscow.

OTHER ORGANIZATIONS OF BENEFIT TO SEAMEN

Beside the special seamen's agencies, there are certain other organizations in New York City whose work has been of direct benefit to seamen and related to the problem of controlling the spread of venereal diseases in the city.

Committee of Fourteen.—The Committee of Fourteen is a voluntary law enforcement organization of long standing in New York City. Working continuously, they have assisted the authorities, among other accomplishments, in improving conditions generally along the water-front and in dance halls and other places of commercialized

¹³ Independent organization.

¹⁴ Affiliated with American Federation of Labor.

¹⁵ National headquarters.

¹⁶ Affiliated with standard railroad brotherhoods.

¹⁷ Branch of International Seamen's Union.

amusement patronized by sailors. The activities of the committee are directed against all forms of commercialized prostitution, and its efforts, combined with those of other official and voluntary organizations, have resulted in making New York a city with "less open vice than any other of the world's largest cities."

The committee makes under-cover investigations of vice conditions throughout the city, discovers centers needing special attention, and provides facts to the police and courts for use in taking remedial action, one result of which is to keep the streets free from the activities of commercial prostitutes. Water-front streets come in for their share of attention, particularly in Brooklyn in the vicinity of the navy yard. The police are notified when conditions are found to be bad, and action on their part usually follows. Studies made of dance halls and of other forms of commercialized amusements have indicated certain remedies, and the committee is recommending these for action through such channels as the New York Crime Commission and a reorganized Women's Police Bureau. An effective supervision of dance halls, the committee believes, could be maintained in New York City, as is now being done in Detroit, with proper personnel in the Women's Police Bureau and a revision of the present licensing system for dance halls.

American Social Hygiene Association.—The American Social Hygiene Association is a national voluntary organization which "seeks to acquire and diffuse knowledge for promoting social health," and in particular to promote the wholesome use of the sex instinct and prevent its abuse. This it does through educational, legal, protective, informational, and medical measures. Such measures affect the life of the merchant seaman in so far as they succeed in making an impression on the community of which he may temporarily be a member. The association has for many years cooperated with various official and voluntary agencies of New York City in the several phases of social hygiene work thus outlined. It participated in the present study of venereal diseases among seamen in the port of New York.

In May, 1929, the association convened in New York a national conference on the prevention of syphilis and gonorrhea among seamen. This was done at the request of certain international bodies (the League of Nations, the International League of Red Cross Societies, and the International Union for Combating Venereal Diseases) which have been interested in the prevention and treatment of venereal diseases among seamen and which were collaborating in plans for a meeting in Geneva in October. The conference in New York had for its purpose the discussion of methods of combating syphilis and gonorrhea among seamen. The delegates composed a very representative body, including shipowners, labor organizations,

the United States Public Health Service, the United States Navy, the United States Shipping Board, and voluntary health and welfare organizations. The conference decided to constitute itself a temporary national advisory committee on the prevention and control of syphilis and gonorrhea among merchant seamen, "to advise and cooperate with all national organizations having similar interests and aims, and in particular to study the means by which better instruction may be given to seamen and better medical attention provided for them on shore and on board ship; to promote in such ways as may seem advisable the medical examination of seamen prior to employment and before discharge; and to encourage the provision of means, both in chemicals and in personnel, for prompt prophylactic treatment of seamen who have exposed themselves to syphilis or gonorrhea." Two American representatives attended the October meeting in Geneva, one from the American Social Hygiene Association and one representing the American Red Cross, the United States Shipping Board, and the Department of State.

Social hygiene committee of New York Tuberculosis and Health Association.—The Social Hygiene Committee of the New York Tuberculosis and Health Association is the coordinating agency for New York City for work in the field of social hygiene. It carries on in the local field activities similar to those of the American Social Hygiene Association in the national field.¹⁸ As a part of its research program it made the study of the service of the New York City clinics for the treatment of seamen with a venereal disease, material from which has been incorporated in this report, and also analyzed and tabulated the medical information on the schedules used in the study.

CHAPTER VII

CONCLUSION

This study has made available for the first time a more or less comprehensive picture of a group of seafarers with venereal disease who became patients in the marine hospitals of the United States Public Health Service. If one could picture the composite seaman of this group of patients, he would be of the white race, born in the United States and an American citizen, between 20 and 24 years of age, with probably at least an eighth-grade education and so able to read simply written material, who had sailed on American ships only and had seen less than five years of sea service on them; who was receiving from \$50 to \$74 a month in addition to his "keep," and who was a beneficiary of the United States Government in the free treatment he was receiving.

¹⁸ See chapter 5, "Venereal disease control" in "A health inventory of New York City: A study of the volume and distribution of health services in the five boroughs." By Michael M. Davis and Mary C. Jarrett. Study 1 of the Research Bureau of the Welfare Council, 1929.

The report has also brought together material on the regulations governing treatment, the facilities for such treatment, and the numbers receiving it in the three marine hospitals in the port of New York as well as in the venereal disease clinics which are locally maintained. Reports on numbers treated, however, are not comparable for all the marine hospitals. What the steamship companies are doing in provision for examination and prophylactic treatment has also been outlined. Analysis of the medical histories was made to learn the results of the treatment given these men, and they were questioned as to the kind of previous treatment they had received. The difficulties confronting men taking out-patient treatment have been pointed out. To find employment to maintain themselves during the necessary course of treatment is most difficult, and a large number of them, despite all the assistance the hospital service section can give, become discouraged and sign on a ship again with treatment incomplete. Facilities in the port for the recreational and other needs of the men while on shore have been described. Inquiries as to their knowledge of syphilis and gonorrhea before becoming infected showed that they had received very little accurate knowledge and that there was great need for more education as to the seriousness of the diseases and methods of prevention and of treatment.

The formulation of regulations has not been considered the province of this report. Some are obvious. Others involve changes that would not be so easily brought about, due, in particular, to the internal organization and administration of the Public Health Service. Appropriations for an extension or reorganization of work in a governmental department are not readily forthcoming. The logical, and at the same time feasible, way of remedying certain situations requires much study.

In providing services for seamen while on shore, the seamen's welfare agencies and the seamen's unions have both had a part, but there has been no cooperation between them. It would seem to be a question whether some of the services now rendered by the welfare organizations might not more logically be a function of the unions or the steamship companies. Before embarking upon a new activity or an extension of work, the agencies might well canvass the situation from this point of view. It is clear that there should be a further and a closer coordination of effort among all the agencies working with seamen—the Public Health Service, the welfare organizations, the unions, the steamship companies, and other interested groups.

The seamen's section of the Welfare Council, which initiated this study in the first instance, stands ready to assist both in considering the recommendations which may arise from the study and in putting them into effect.

The temporary committee appointed last May at the conference on the prevention of syphilis and gonorrhea among seamen will, it is

expected, become permanent. The deep concern felt by all represented at the conference is a guaranty that the individual members and groups will face responsibility of prosecuting more vigorously the activities already undertaken for remedying such phases of the situation as lie within their power. And then, through united action, they will seek to find solutions for the other problems involved.

If the material made available in this report is of service in these efforts, the advisory committee which has planned and guided the course of this study and the organizations which have provided the auspices and financial support will consider all the effort involved to have been well worth while.

APPENDIX A

SCHEDULE

V. D.—CASE STUDY—SEAMEN Name of person filling out form.....
 Port—New York No. Hospital.....
 U. S. Public Health Service

One card to be filled out for each seaman under care from..... to

IDENTIFYING INFORMATION

Name of patient..... Hospital Case No..... New..... (Check)
 (Surname) (First Name) (Alias)

Old.....
 Recurrent.....

Present address..... Latest S. S. S. S. Line.....

Referred by (check) S. S. Line..... social agency..... other agency..... individual..... own initiative.....

Cleared through Social Service Exchange (check) yes..... no..... Date.....

Known to what agencies (specify).....

Date latest admission to this clinic or hospital..... (check) Out-patient..... Hospital patient.....

Bed patient..... Ambulatory.....

Beneficiary of (check) U. S. Foreign Consulate..... Steamship Co..... Other (specify).....

FAMILY STATUS (check) No. children.....

Married..... Single..... Divorced or separated..... Deserter..... Widower..... Over 16.....

Wife..... Under 16.....

(Name) (Address)

Relatives in Port (check) Yes..... No..... Relationship (specify).....

NATIONALITY

Country of Birth	Nationality	Race (check)	Date of birth	Citizen U. S.	First Papers (Date)	Alien	Religion	Left School	
								Age	Grade
		White.....					Prot.....		Elem.....
		Col.....					Cath.....		High.....
		Other.....					Jew.....		Tech.....
							Other.....		
							None.....		

(Check) English Other languages (specify).....

Reads.....

Writes.....

Speaks.....

USE OF SPARE TIME (check)

Reading: fiction..... scientific..... Study: (specify).....

Recreation: (check) athletics..... movies..... cards..... pool..... dancing..... drinking, wine or beer.....

Other (specify):..... whiskey.....

ECONOMIC STATUS

Occupation on ship (check)	Amount Income Monthly (last employ)	Length of Sea Service
Deck Dept.	American	Foreign
Steward Dept.		
Engine Dept.	Week	
Licensed Officer	Month	
Others	Year	
No months employed year ending January, 1928	Date last employment	
Occupation previous to last employment		
Total amount income seaman's family from all sources (monthly)		
Wife working (check) yes..... no.....	Estimated earnings amount	
Children working (check) yes..... no.....	Estimated earnings amount	
Contributions from relatives or friends (check)	Estimated amount	
yes..... no.....		
Other sources (check) yes..... no.....	Estimated amount	
	Total	

PHYSICAL CONDITION OF PATIENT

Diagnosis	Date of Onset	Stage (check)	Symptoms (check)
Gonorrhea		Acute..... Chronic.....	Discharge..... Other complications: Joint involvements..... Orchitis..... Other (specify).....
Syphilis		Early..... Late..... Congenital.....	Open lesions..... Rash..... Nervous involvements: General paresis..... Locomotor ataxia..... Other (specify)..... Vascular involvements: Aneurysm..... Hemiplegia..... Other (specify)..... Visceral involvement (specify).....
Other physical disabilities outside of V D (specify)			

Mental diagnosis by neuropsychiatrist.

First infection (check) gonorrhea.....	Syphilis.....
Probable source of first infection.	Commercial prostitute.....Conjugal.....
Date Country City Address	Clandestine prostitute.....Accidental.....
	Other (specify).....

Extent previous knowledge disease before first infection (check)

None..... Vague..... Knowledge of prevention.....
Through what means obtained (check) Literature..... Friends and relatives..... Physicians.....
Other (specify)

Later infections (check) gonorrhea.....	Syphilis.....
Date Country City Address	Commercial prostitute..... Conjugal.....
	Clandestine prostitute..... Accidental.....
	Other (specify).....

Treatment previous to this admission	By whom (check)	What kind	City	How Long	Remarks
Gonorrhea	Private physician..... Ship physician..... Institution..... Quack..... Self treated..... Drug store..... No treatment.....	Prophylaxis..... Local irrigation..... Physiotherapy.....			
Syphilis	Private physician..... Ship physician..... Institution..... Quack..... Self treated..... Drug store..... No treatment.....	Prophylaxis..... Intravenous..... External mercury..... Internal medication.....			

TREATMENT

Case discharged, yes.....no.....Date.....Treatment complete.....Incomplete.....Interval.....
 Condition on discharge (check) Improved.....Unimproved.....Arrested.....Infections.....Noninfectious.....
 Further treatment needed.....Other (specify).....
 Disposition of case: Transferred to other hospital (specify).....
 Returned to employment (check) Sea.....Land.....
 Patient failed to return because of: Economic difficulties.....
 Disappearance of symptoms.....

SOCIAL INVESTIGATION

Employed on shore while under treatment. yes.....no.....How secured (check)
 Type of work (specify).....This hospital.....
 Employment bureau.....
 Own initiative.....
 Was investigation of patient's family possible.....If not, why (check) Could not locate.....Information
 refused.....Lack of personnel.....Family in foreign countries.....Other (specify).....
 Were members of family seen by any social agency during period of study (other than this hospital or clinic)
 (check) yes.....no.....Name of agency.....
 If so, what family problems were discovered (check) Economic.....Unemployment.....Health.....
 Education.....Recreation.....Others (specify).....What treatment given.....

REMARKS

APPENDIX B

List of institutions included in survey made by New York Tuberculosis and Health Association on numbers of seamen treated in venereal-disease clinics in New York City

MANHATTAN AND BRONX

Hospital	Address	Re- plied	Vis- ited	As- sisted	Cases reported
Beekman Street.....	117 Beekman St.....	+	+	+	40
Bellevue.....	First Ave. and 26th St.....	+	+	+	11
Beth David.....	1824 Lexington Ave.....	+	+	+	0
Beth Israel.....	70 Jefferson St.....	+	+	+	1
Booth Memorial.....	314 East 15th St.....	+	+	+	0
Broad Street.....	129 Broad St.....	+	+	+	7
City.....	220 East 59th St.....	+	+	+	3
Cornell.....	First Ave. and 27th St.....	+	+	+	16
Flower.....	429 East 63d St.....	+	+	+	0
Fordham.....	Southern Blvd. and Crotona Ave.....	+	+	+	0
French.....	450 West 34th St.....	+	+	+	5
German Polyclinic.....	137 Second Ave.....	+	+	+	0
Good Samaritan.....	75 Essex St.....	+	+	+	12
Gouverneur.....	Front St.....	+	+	+	(¹) 0
Harlem.....	13th St. and Lenox Ave.....	+	+	+	0
Health Department.....	505 Pearl St.....	+	+	+	² 30
Hospital for Joint Diseases.....	41 East 123d St.....	+	+	+	(¹) 0
Italian.....	617 East 83d St.....	+	+	+	0
Lebanon.....	Westchester and Cauldwell Aves.....	+	+	+	0
Lenox Hill.....	76th St. and Park Ave.....	+	+	+	(¹) 1
Lincoln.....	East 141st St. and Concord Ave.....	+	+	+	1
Metropolitan.....	430 East 88th St.....	+	+	+	9
Mount Sinai.....	Madison Ave. and 100th St.....	+	+	+	1
New York.....	8 West 16th St.....	+	+	+	13
New York Dispensary.....	34 Spring St.....	+	+	+	0
New York Polyclinic.....	345 West 50th St.....	+	+	+	(⁴) 1
New York Post-Graduate.....	354 Second Ave.....	+	+	+	66
New York Skin and Cancer.....	18th St. and Second Ave.....	+	+	+	(¹) 1
Roosevelt.....	428 West 59th St.....	+	+	+	0
St. Luke's.....	114th St. and Amsterdam Ave.....	+	+	+	1
St. Mark's.....	179 Second Ave.....	+	+	+	0
Sydenham.....	345 West 123d St.....	+	+	+	0
University and Bellevue.....	338 East 26th St.....	+	+	+	(¹) 1
Vanderbilt Clinic.....	168th St. and Broadway.....	+	+	+	1

BROOKLYN

Beth Moses.....	404 Hart St.....	+	+	+	0
Brooklyn.....	161 Raymond St.....	+	+	+	1
Cumberland.....	North Portland Ave.....	+	+	+	0
Jewish.....	Prospect Place and Glasson Ave.....	+	+	+	0
Long Island College.....	Henry and Amity Sts.....	+	+	+	61
Norwegian Lutheran.....	4520 Fourth Ave.....	+	+	+	19
Total.....		27	11	4	299

¹ Not known.² Estimated.³ No record.⁴ Not submitted.⁵ Very few.

APPENDIX C

TREASURY DEPARTMENT,
U. S. PUBLIC HEALTH SERVICE.
Form 1915.
F. C., Nov. 4-10.

MASTER'S CERTIFICATE OF SERVICE OF SICK OR INJURED SEAMEN

(Place.)

To whom it may concern:

I certify, on honor, that _____, whose signature and description appear below, has been employed on board in the care, preservation, or navigation of the _____ (Name and class of vessel.) of _____, or in the service, on board, of those engaged in the care, preservation, or navigation of said vessel, from the _____ day of _____, 19 _____, to the _____ day of _____, 19 _____. I further certify that the person named herein has, in my presence, signed his name in the blank space provided below for that purpose.

Master of the above-named vessel.

Signature of the person named above _____

Nativity _____, age _____ years, height _____ feet _____ inches _____ color of eyes _____, color of hair _____, distinguishing marks _____

Previous service _____

Total service on U. S. vessels ____ years ____ months.

INSTRUCTIONS

1. If the seaman is unable to write, his mark should be witnessed by the master or authorized agent of the vessel.
2. The medical officer, or attending physician, should compare the seaman's signature with that given in the certificate, as a means of identification.

Notice.- This certificate must be signed by the Master or Authorized Agent of the Vessel. Any person defrauding the United States by forging signatures or gaining admission to a hospital when not a seaman will be prosecuted and punished according to sections 5418, 5421, or 5438, Revised Statutes

APPENDIX D

COMPTROLLER GENERAL'S DECISION ON RELIEF OF AMERICAN SEAMAN

(Decision of the Comptroller General of the United States (A-23409))

The fact that an American seaman may be suffering from a venereal disease the result of his own vices or misconduct does not relieve the owners or operators of the vessel on which he last served of their obligation to furnish such maintenance and hospitalization as may be necessary in connection with or incident to his return to a port of the United States.

Comptroller General McCarl to the Secretary of State, June 28, 1928:

I have your letter of June 20, 1928, as follows:

"The department has received a number of communications from American consular officers, who request additional information regarding their authority to supply maintenance and hospitalization from funds appropriated for the relief and protection of American seamen in the cases of seamen discharged because they are suffering from venereal diseases.

"The drafting of replies to these inquiries requires careful interpretation of your opinion published in 5 Comp. Gen. 623, and the correctness of instructions

on the point is so important to consular officers that you are requested to give further information concerning the portions of your opinion referred to above, that are hereinafter cited:

"Question No. 2 (a), which was presented by the American consul at Yokohama, Japan, and is quoted on page 624, vol. 5, of your decisions, is as follows:

" 'Does the fact that he is at fault relieve the vessel upon which he serves of liability for his hospitalization, maintenance, and repatriation?'

"On page 626 of the same decision your reply is as follows:

" '2. (a) and (b) are answered in the negative. 14 Comp. Dec. 570; 15 id. 348; 4 Comp. Gen. 248.'

"Question 2 (c), quoted on page 624 of the aforesaid decision, reads as follows:

" '(c) Should a seaman discharged on account of venereal disease become a charge upon the consulate or upon the vessel?'

"And you made the following reply on page 626:

" '(c) It has been held that where an American seaman is discharged on account of injuries received as a result of his own wilful misconduct and disobedience of orders, or because of disease arising from his own vices or gross indiscretion, the ship is not liable for care and maintenance after discharge. *The Alector*, 263 Fed. Rep. 1007; 15 Comp. Dec. 740. But in such a case the consular officer should nevertheless provide for the seaman's return to the United States and in this connection see answer to questions 1 (a), (b), (d), and (e), supra.'

"The portions of your decisions quoted above place the obligation of repatriation upon the vessel or its owners in all cases where seamen have been discharged on account of illness or injury caused by their own fault, irrespective of whether the disability is caused by venereal diseases or takes some other form; but there is a doubt in the minds of some officers regarding the effect of the apparent limitations placed upon the obligation of vessels or their owners to supply maintenance and hospitalization (as distinct from transportation) in cases where seamen are discharged because they are suffering from venereal diseases. You are requested to give the department an opinion as soon as practicable, upon which appropriate instructions to consular officers in the premises may be based."

In reply you are advised that the fact that the seaman may be suffering from a venereal disease the result of his own vices or misconduct does not relieve the owners or operators of the vessel on which he last served of their obligation to furnish such maintenance and hospitalization as may be necessary in connection with or incident to his return to a port of the United States.

APPENDIX E

INTERNATIONAL ACTION

Besides the local and national agencies described in the report, there are international groups which are likewise working for the control and elimination of venereal disease. Certain phases of the work of these organizations have had the needs of seamen particularly in view. Four of these international groups—the International Office of Public Hygiene, the International Labor Organization, the League of Red Cross Societies, and the International Union to Combat Venereal Diseases—are described in the following pages in the order of their organization. The International Labor Organization, through the International Labor Office, has collaborated with the other organizations mentioned above and with the health organization of the League of Nations. It has issued a report summarizing the measures under-

taken by all these organizations looking toward the prevention and cure of venereal disease.¹⁹ The League of Red Cross Societies, the health section of the League of Nations, and the International Labor Office have appointed a permanent standing committee for the welfare of seamen. This was done with a view to studying suitable measures for facilitating medical treatment of seamen and promotion of their well-being, both at sea and ashore.

Immediately preceding the International Labor Conference in Geneva in October, 1929, there was held the second International Conference on the Health and Welfare of Merchant Seamen under the auspices of the League of Red Cross Societies, the International Union to Combat Venereal Diseases, and the International Association of Mercantile Marine Officers. The conference discussed the general problem of seamen's welfare in ports, medical organization in connection with health problems affecting seamen, and seamen's welfare on board ship.

International Office of Public Hygiene.—The International Office of Public Hygiene, which has its headquarters in Paris, was set up in 1907, when 12 States signed the Rome convention. Since then 38 other countries and dependencies have adhered to the convention.

The International Office prepared the draft of the agreement concerning the protection of seamen against venereal disease. It was assisted in approaching the various Governments by the Belgian Government, which, in July, 1921, invited States possessing maritime or river ports to sign the agreement. This Brussels agreement, signed December 1, 1924, has been described in this report.²⁰

The International Office of Public Hygiene has been studying the question of uniform methods of notifying the results of the Wassermann tests carried out in various clinics. There has been collaboration between the Office and the health committee of the League of Nations, which has been studying standardization of methods of serum diagnosis. In 1921 it called an international conference on the subject, one committee of which was devoted to the serum diagnosis of syphilis.

International Labor Organization.—When in 1919 the International Labor Organization was being set up in the treaty of peace it was proposed that a separate maritime organization should be established. This proposal was not accepted, but it was indicated from the outset that while the International Labor Organization should deal with conditions of labor at sea, maritime questions should be considered in sessions of the International Labor Conference devoted exclusively to them.

¹⁹ Protection of the health of seamen against venereal disease. International Labor Office. 1926.

²⁰ See PUBLIC HEALTH REPORTS for Apr. 11, 1930, p. 853.

Three special maritime sessions of the International Labor Conference have been held, in the years 1920, 1926, and 1929, respectively. The first important step toward establishing a definite demarcation between the maritime and general functions of the Organization was taken in March, 1920, when the appointment was decided upon of a joint commission of 12 members, consisting of 5 shipowners, 5 seamen, and 2 members chosen by the governing body of the International Labor Office. This joint maritime commission was to assist the technical maritime service which had been set up in the International Labor Office and to be consulted on questions of maritime labor. In 1921 it was agreed that all questions of maritime affairs to be brought before International Labor Conferences should previously be considered by the joint maritime commission.

The possibility of drafting an international seamen's code has received much attention. This was discussed at the first maritime session, and a commission was set up to study the question. The commission recommended that as a first step each member of the International Labor Office should "undertake the embodiment in a seamen's code of all its laws and regulations relating to seamen in their activities as such." The International Labor Office assisted by preparing a complete collection of national laws and regulations on the engagement, dismissal, repatriation, and discipline of seamen, including those of the United States. Its report, *Seamen's Articles of Agreement*, some 900 pages in length, is the most comprehensive published on the subject. At the 1926 International Labor Conference a convention on seamen's articles of agreement was adopted for submission to the members of the International Labor Organization. By January, 1929, this had been ratified by four countries.

The question of hours of work has aroused the most controversy. The resistance of the shipowners to any discussion of the subject has become firmer and the opinion of the Governments is widely divided. The seamen's organizations have not ceased to insist on the application to themselves of the eight-hour day, which they consider one of the essential principles enunciated in the labor section of the peace treaty.

Action taken with reference both to the employment of young persons at sea and finding facilities for employment at sea has been mentioned in previous chapters.²¹

Other matters considered, some of them the subject of conventions or recommendations, are as follows: General principles for the inspection of the conditions of work of seamen; unemployment indemnity in case of the loss or foundering of any vessel; safety of human life at sea with a subcommittee to consider deck cargoes, a source of special danger at sea; technical education for seamen; and the application of

²¹ See PUBLIC HEALTH REPORTS for Apr. 11, 1930, p. 806, and for Apr. 18, 1930, p. 872.

decisions of International Labor Conferences to the fishing industry and to inland navigation.

The importance of international measures for the prevention and treatment of venereal diseases in the mercantile marine was recognized by the Genoa International Labor Conference in 1920. It recommended the following points, particularly the fourth, for special consideration:

- (1) The provision of adequate facilities for the prevention and treatment of venereal diseases at all the principal ports.
- (2) The inclusion of venereal diseases among the conditions for which free drugs and treatment are provided for members of the mercantile marine.
- (3) The dissemination of appropriate information on the subject to seafarers, and especially to those at training establishments.
- (4) The provision of adequate facilities for recreation at all large ports under the administration of joint organizations representative of owners and seafarers.

Other international organizations are interested in the problem of venereal disease among seamen, and the International Labor Office, in studying the question and in preparing for international action, has collaborated closely with the International Office of Public Hygiene, the International Union to Combat Venereal Diseases, the League of Red Cross Societies, and the health organization of the League of Nations. *Protection of the Health of Seamen Against Venereal Disease*, published early in 1926 by the International Labor Office, contained information on the steps, national and international, which had been taken by the organizations mentioned above in their work to combat venereal disease.

The subcommittee, set up in April, 1925, by the Joint Maritime Commission to investigate and report on conditions relating to seamen's welfare in ports, after careful investigation, reported to the commission that conditions prevailing in the seaports were extremely bad. "National authorities, central and local, have done practically nothing," it stated, "to protect the interests of foreign seamen in various seaports." The 1926 International Labor Conference considered the report of the subcommittee and instructed the International Labor Office to continue the study of seamen's welfare and to submit the subcommittee's report to the attention of the Governments.

Preliminary to the meetings in Geneva in October, 1929, of the International Conference on the Health and Welfare of Merchant Seamen, held under the auspices of several international organizations, and the maritime sessions of the International Labor Conference, conferences were held in various countries to discuss the problems to be considered in Geneva. These were called at the request of the international agencies concerned. The meeting for the United States was the national conference on the prevention of syphilis and gonorrhea among seamen called by the American Social Hygiene

Association on May 28, 1929. This has been mentioned elsewhere in more detail.²² The International Labor Conference in October discussed, among other matters on the agenda, the protection of seamen in case of sickness and the promotion of seamen's welfare in ports.

League of Red Cross Societies.—The acceptance by Red Cross Societies of a wider responsibility than the care of sick, wounded, and prisoners in time of war dates from the founding, in 1919, of the League of Red Cross Societies by the Red Cross Societies of France, Great Britain, Italy, Japan, and the United States. The reason it came into being is perhaps best described in the words of Henry P. Davison, chairman of the board of governors, at the opening session of the first meeting of the general council in 1920. Mr. Davison stated:

Soon after the armistice was signed several of us who were charged in part with the responsibility in some of the larger Red Cross organizations found ourselves faced with the task of demobilizing our forces, which had grown to be comparatively very great. As we were contemplating this step we were impressed with the fact that if our forces were to be scattered and our organizations reduced to their pre-war status of non-activity, there would be lost to the world one of the few beneficent results of the war which might be preserved in the interest of mankind.

The International Red Cross Committee, dating back to 1863 and with headquarters in Geneva, Switzerland, had considered that the character of its organization was such that it could not undertake the larger program suggested, and so a separate organization was set up for this purpose.

The objects subscribed to by the 30 original members are given below. The league now has a membership of 50 national Red Cross societies and issues a monthly review, "The World's Health."

(1) To encourage and promote in every country in the world the establishment and development of a duly authorized voluntary national Red Cross organization, having as purposes the improvement of health, the prevention of disease, and the mitigation of suffering throughout the world, and to secure the cooperation of such organizations for these purposes.

(2) To promote the welfare of mankind by furnishing a medium for bringing within the reach of all the peoples the benefits to be derived from present known facts and new contributions to science and medical knowledge and their application.

(3) To furnish a medium for coordinating relief work in case of great national or international calamities.

The headquarters of the secretariat of the League is in Paris and has divisions of health, nursing, disaster, relief, and Junior Red Cross. Within the health division there is a department for combating venereal disease, which has issued pamphlets and which serves as international headquarters for the activities of national Red Cross societies in this direction.

The League of Red Cross Societies, as the result of a report submitted by the Norwegian Red Cross in 1924, had urged that discussions

²² See p. 946.

of the prevention of venereal disease among seamen should be extended to include "a wider health program for seamen of the merchant marine." It was partly as a result of these representations that the subcommittee on seamen's welfare in ports was appointed by the joint maritime commission of the International Labor Organization.

International Union to Combat Venereal Diseases.—The International Union to Combat Venereal Diseases was organized in 1923. It adopted a program outlining the methods to be used in propaganda work and the measures necessary to secure unity of policy among national organizations in investigations and other activities. This program has been reproduced in Appendix F, since it is such a comprehensive statement of the aims and methods in use by organizations throughout the world in their work against venereal disease.

The Union took as its basis of work the resolution adopted by the Genoa International Labor Conference in 1920, which asked for information on the steps taken or contemplated for the prevention of venereal disease. Through the French Ministry for Foreign Affairs it addressed an inquiry to 31 maritime countries for information which would enable it to inform seamen of the facilities existing in every port for prevention and treatment.

A ports committee was later set up, assisted by a committee of three experts, to undertake research work on the spot and to centralize the study of prophylaxis both by medical and educational methods. The resolution of October 9, 1925, which relates definitely to work among seamen, is reproduced in full below:

Supervision of Ports

Considering that the International Union has undertaken the work of preventing the spread of venereal disease amongst seamen, the managing council request—

(1) That the general secretariat of the International Union should request the various Governments to approach the shipowners in order to induce them to assist in the prevention of venereal disease amongst seamen.

(2) That from the sanitary point of view a study should be made of the whole question of the treatment of seamen on board ships which do not carry a ship's doctor.

(3) That the official bodies and national associations belonging to the International Union should carry out active educational, sanitary, prophylactic, and moral propaganda for seamen on their arrival and during their stay in port by means of the press, including trade union and other journals, lectures, tracts, posters, etc.

(4) That the general secretariat of the International Union should issue an international propaganda notice which could subsequently be published in the form of a tract.

(5) That a complete international list of dispensaries existing in all ports should be drawn up in order to promote continuity of treatment.

(6) That the International Union should, through the Governments or international associations, enter into relations with shipowners' organizations and all other maritime organizations to ask them for their assistance and material and moral support on the following points:

(a) Propaganda as indicated above.

- (b) The creation in all ports of a permanent information bureau which could exercise a direct influence over seamen by giving them precise information (addresses of dispensaries, days and times of consultations, etc.) on the facilities for treatment available in the towns in which they happen to be and to warn seamen against the danger of unreliable advertisements and convince them of the importance of early and continuous treatment.

(7) That the primary importance of early disinfection and treatment should be borne in mind and that the appropriate machinery for this purpose should be set up with the assistance of the competent bodies.

(8) That the International Union should systematically promote the unification and the practical and complete realization of all international measures for the prevention of venereal disease amongst seamen.

(9) That the general secretariat of the International Union should draw the attention of the competent association to the serious consequences from the point of view of the spread of venereal disease of allowing prostitutes access to ships in port and should recommend that the necessary steps be taken to prevent such access.

APPENDIX F

COMPREHENSIVE PROGRAM FOR VENEREAL-DISEASE CONTROL FORMULATED BY THE INTERNATIONAL UNION TO COMBAT VENEREAL DISEASES

The program adopted by the International Union to Combat Venereal Diseases at the time of its institution in 1923 summarizes the many aspects of venereal-disease control upon which it and all other social hygiene agencies are at work. It is given in full below.

In order effectively to combat venereal diseases and to obtain practical results which will have a beneficial effect on the health of individuals throughout the world, the first measures necessary are the following:

A. The organization of continuous and progressive propaganda among men and women of all classes in all parts of the world with a view to destroying prejudice, modifying existing conceptions and, above all, to securing the recognition of the fact that venereal diseases are not shameful diseases and should be considered by all (parents, teachers, doctors) as communicable diseases belonging to the category of diseases necessitating an appropriate policy of prevention and specific treatment

This propaganda might be conducted as follows:

(a) By combating unhealthy ignorance through the sex education of boys and girls, following a definite plan which has already given encouraging results in certain quarters;

(b) By educating educationists (parents, masters, and mistresses in public schools, men and women teachers) by placing textbooks and sample lectures at their disposal; by drawing their attention to the complex problem of venereal disease and thus enabling them to give appropriate and adequate instruction to those coming within their sphere of influence;

(c) By improving moral education in view of producing a salutary reaction against unhealthy allurements and temptations (organization and exploitation of prostitution, indecent entertainments, and publications); by securing the close and effective cooperation of the medical and legal professions, legislators, and educators of youth of both sexes;

(d) By making use of all possible means of propaganda for this purpose, more especially by obtaining the cooperation of the religious, political, educational,

military, administrative, and social authorities, and of the press in all parts of the world.

B. The methodical and scientific organization of adequate facilities for treating and rendering noninfective the germ carriers of venereal diseases, this being one of the most effective measures in the antivenereal campaign.

The first measures to be carried out by the International Union will be as follows:

TO FORMULATE A GENERAL STATEMENT OF AIMS

(International Union Poster)

(1) To adopt a statement on venereal diseases, their prophylaxis, possibility of cure, and the necessity for treatment, the text of which will be adapted to the mentality and customs of each country and can be used for a poster, a tract, or an appeal for insertion in the general press of each country.

INVESTIGATIONS

(2) To conduct inquiries concerning:

(a) The organization of antivenereal prophylaxis, detection of cases, treatment, education of patients, etc., for all classes and both sexes in all countries belonging to the International Union;

(b) The principal international avenues through which the venereal diseases are disseminated (naval and colonial troops, maritime and territorial migration);

(c) The legislation, regulations, and sanitary policy of each country in view of the campaign against pornography, procuring, prostitution, quackery, and illegal medical practices.

These investigations will be carried out by the national societies belonging to the International Union, either on their own initiative or at the request of the union. If the national society can not itself undertake such an inquiry, the International Union, in agreement with the society concerned, will nominate another organization, a group of individuals, or a competent expert to make the inquiry. The result of such inquiries will be communicated to the Governments interested and such international organizations as may find in them elements relative to the amelioration of public health.

With regard to countries in which there is no national society dealing with venereal disease, the International Union may directly approach the Government on the vote of the majority of the board of officers.

UNIFICATION OF THE CAMPAIGN AGAINST VENEREAL DISEASE

(3) To secure unity of policy with regard to the direction in which the various national societies are working—

(a) By defining the principles of an international prophylaxis for venereal disease and bringing about their adoption.

(b) By coordinating as far as is possible the various national programs (propaganda, prophylaxis by treatment in the armies, navies, and administrative services of the various countries) and by establishing an international medical-social record system.

(c) By encouraging an international service of information for the prevention of falsification and fraud in the production of drugs used for the treatment of venereal diseases.

WORK OF IMMEDIATE IMPORTANCE

(1) Rendering noninfective the maritime and colonial services.

(2) Surveillance of emigration.

(3) Surveillance and concerted action along the frontiers.

- (4) International measures for the suppression of quackery.
 (5) A single moral standard for both sexes.
 (6) To study generally the principles of legal responsibility, compulsory notification and treatment, penalties, etc.

DEATHS DURING WEEK ENDED APRIL 12, 1930

Summary of information received by telegraph from industrial insurance companies for the week ended April 12, 1930, and corresponding week of 1929. (From the Weekly Health Index April 16, 1930, issued by the Bureau of the Census, Department of Commerce)

	Week ended April 12, 1930	Corresponding week, 1929
Policies in force.....	75, 730, 569	73, 889, 226
Number of death claims.....	15, 055	15, 347
Death claims per 1,000 policies in force, annual rate.....	10. 4	10. 8

Deaths from all causes in certain large cities of the United States during the week ended April 12, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index, April 16, 1930, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Apr 12, 1930		Annual death rate per 1,000, corre- sponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Apr. 12, 1930 ¹
	Total deaths	Death rate ¹		Week ended Apr 12, 1930	Corre- sponding week, 1929	
Total (65 cities).....	8, 079	14. 2	13. 4	781	731	8. 69
Albany ⁴	45	19. 5	13. 6	4	3	87
Atlanta.....	98	20. 0	15. 7	5	4	53
White.....	42			4	4	127
Colored.....	56	(⁵)	(⁵)	1	0	16
Baltimore ⁴	219	15. 6	14. 0	24	18	81
White.....	191			21	11	90
Colored.....	58	(⁵)	(⁵)	3	7	49
Birmingham.....	72	16. 9	14. 3	7	6	65
White.....	30			2	3	31
Colored.....	42	(⁵)	(⁵)	5	3	118
Boston.....	247	16. 1	15. 1	28	20	79
Bridgeport.....	31			2	2	34
Buffalo.....	156	14. 6	12. 5	15	18	67
Cambridge.....	25	10. 4	11. 6	3	5	56
Camden.....	23	8. 9	15. 4	8	5	145
Canon.....	19	8. 5	12. 1	4	2	99
Chicago ⁴	760	12. 6	12. 9	72	89	64
Cincinnati.....	139			6	13	36
Cleveland.....	222	11. 5	11. 5	15	21	45
Columbus.....	86	15. 0	11. 0	8	4	78
Dallas.....	64	15. 3	12. 9	3	11	
White.....	49			2	9	
Colored.....	15	(⁵)	(⁵)	1	2	
Dayton.....	54	15. 3	13. 8	5	5	74
Denver.....	106	18. 8	14. 7	5	10	52
Des Moines.....	30	10. 3	15. 8	2	4	35
Detroit.....	369	14. 0	13. 6	58	37	90
Duluth.....	29	12. 9	12. 1	1	3	27
El Paso.....	40	17. 7	15. 0	10	7	
Erie.....	22			1	1	21
Fall River ⁴	34	13. 2	11. 3	3	5	69
Flint.....	38	13. 3	13. 0	7	5	82
Fort Worth.....	25	8. 6	8. 6	1	4	
White.....	22			1	2	
Colored.....	6	(⁵)	(⁵)	0	2	
Grand Rapids.....	47	14. 9	9. 8	8	5	122
Houston.....	82			11	6	
White.....	47			6	4	
Colored.....	35	(⁵)	(⁵)	5	2	
Indianapolis.....	117	16. 0	13. 5	4	4	30
White.....	102			3	3	26
Colored.....	15	(⁵)	(⁵)	1	1	54
Jersey City.....	83	13. 3	12. 0	15	5	130
Kansas City, Kans.....	21	9. 3	12. 8	0	1	0
White.....	18			0	0	0
Colored.....	3	(⁵)	(⁵)	0	1	0

(Footnotes at bottom of table)

Deaths from all causes in certain large cities of the United States during the week ended April 12, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index, April 16, 1930, issued by the Bureau of the Census, Department of Commerce)—Continued

City	Week ended Apr. 12, 1930		Annual death rate per 1,000, corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Apr. 12, 1930
	Total deaths	Death rate		Week ended Apr. 12, 1930	Corresponding week, 1929	
Kansas City, Mo.	125	16.7	11.9	9	7	70
Knoxville	22	10.9	22.3	3	4	70
White	17			3	4	78
Colored	5	(5)	(5)	0	0	0
Los Angeles	282			31	21	94
Louisville	101	16.0	16.1	3	3	26
White	65			3	3	30
Colored	36	(5)	(5)	0	0	0
Lowell	22			2	5	47
Lynn	32	15.8	13.8	3	3	76
Memphis	79	21.7	22.8	9	8	107
White	43			7	3	129
Colored	36	(5)	(5)	2	5	67
Milwaukee	125	12.0	12.7	20	24	101
Minneapolis	83	9.5	12.2	9	7	58
Nashville	44	16.4	19.0	5	4	77
White	24			2	2	41
Colored	20	(5)	(5)	3	2	190
New Bedford	27			3	3	77
New Haven	28	7.8	10.5	2	2	39
New Orleans	181	22.0	16.4	16	11	93
White	105			8	7	71
Colored	76	(5)	(5)	8	4	135
New York	1,602	14.7	13.5	169	156	71
Bronx Borough	222	12.2	10.6	21	20	49
Brooklyn Borough	581	13.1	12.4	70	67	74
Manhattan Borough	672	20.0	19.4	63	59	103
Queens Borough	172	10.5	7.3	13	7	38
Richmond Borough	45	15.6	10.6	2	3	37
Newark, N. J.	121	13.3	12.8	21	14	110
Oakland	68	12.9	10.5	1	4	12
Oklahoma City	39			2	1	39
Omaha	56	13.1	13.8	8	3	91
Pateron	28	10.1	10.1	6	4	104
Philadelphia	511	12.9	14.4	41	43	61
Pittsburgh	217	16.8	11.2	22	15	81
Portland, Oreg.	70			3	1	37
Providence	84	15.3	12.0	4	9	37
Richmond	68	18.2	15.0	7	9	104
White	40			3	2	67
Colored	28	(5)	(5)	4	7	175
Rochester	86	13.7	13.2	1	9	9
St. Louis	252	15.5	14.0	15	15	49
St. Paul	53			2	4	20
Salt Lake City	47	17.8	12.8	4	5	63
San Antonio	56	13.4	18.6	8	11	
San Diego	47			3	1	63
San Francisco	138	12.3	15.0	8	8	55
Schenectady	29	16.2	7.8	0	1	0
Seattle	91	12.4	9.8	5	6	50
Somerville	21	10.7	13.7	5	5	163
Spokane	38	18.2	8.6	5	2	130
Springfield, Mass.	41	14.3	12.9	5	5	79
Syracuse	62	16.2	12.8	6	3	74
Tacoma	31	14.6	18.4	1	2	26
Toledo	68	11.3	13.5	8	4	73
Trenton	30	14.6	12.8	3	1	56
Utica	35	17.5	17.5	1	1	28
Washington, D. C.	155	14.6	14.2	13	4	75
White	98			5	3	43
Colored	57	(5)	(5)	8	1	142
Waterbury	18			2	0	51
Wilmington, Del.	41	16.6	10.6	4	3	90
Worcester	60	15.8	15.8	6	2	78
Yonkers	20	8.6	7.7	1	1	24
Youngstown	42	12.6	9.9	9	3	141

¹ Annual rate per 1,000 population.

² Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.

³ Data for 72 cities.

⁴ Deaths for week ended Friday.

⁵ In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 23; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 28.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended April 12, 1930, and April 13, 1929

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended April 12, 1930, and April 13, 1929

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Apr. 12, 1930	Week ended Apr. 13, 1929	Week ended Apr. 12, 1930	Week ended Apr. 13, 1929	Week ended Apr. 12, 1930	Week ended Apr. 13, 1929	Week ended Apr. 12, 1930	Week ended Apr. 13, 1929
New England States:								
Maine.....	1	0	7	1	40	257	0	0
New Hampshire.....	1	1	2	8		78	0	0
Vermont.....					13	3	0	0
Massachusetts.....	40	98	8	22	1,294	423	2	6
Rhode Island.....	7	12			4	97	0	0
Connecticut.....	11	15	5	10	20	620	2	3
Middle Atlantic States								
New York.....	157	280	132	123	1,448	1,095	33	36
New Jersey.....	90	92	24	6	1,219	286	5	5
Pennsylvania.....	107	151			1,389	1,939	26	12
East North Central States								
Ohio.....	53	89	47	65	665	2,691	9	20
Indiana.....	22	5			107	616	11	0
Illinois.....	133	183	16	128	923	1,922	16	20
Michigan.....	78	81	3	11	1,998	891	41	77
Wisconsin.....	13	14	108	19	899	1,293	3	5
West North Central States								
Minnesota.....	4	20	3	1	304	529	2	3
Iowa.....	7	9			362	83	5	0
Missouri.....	34	32	11	5	63	368	20	17
North Dakota.....	8	4			50	125	3	4
South Dakota.....	5	10	2		164	17	1	7
Nebraska.....	20	9			529	72	1	2
Kansas.....	6	9	5	13	714	471	4	1
South Atlantic States								
Delaware.....	3	1			6	18	0	0
Maryland.....	17	25	44	23	42	68	1	1
District of Columbia.....	9	8		1	12	24	1	0
Virginia.....								2
West Virginia.....	14	11	28	25	137	376	2	0
North Carolina.....	40	21	71		41	42	9	0
South Carolina.....	14	11	603	344		10	0	0
Georgia.....	9	6	77	31	192	39	1	2
Florida.....	10	5	3	3	529	58	2	0
East South Central States								
Kentucky.....					46		11	2
Tennessee.....	9	6	57	55	216	38	30	1
Alabama.....	13	11	95	46	172	200	2	1
Mississippi.....	5	8					15	1
West South Central States								
Arkansas.....	1	1	83	19	61	25	4	18
Louisiana.....	18	17	10	23	78	57	5	2
Oklahoma.....	14	9	64	72	214	69	1	10
Texas.....	28	47	41	84	180	333	0	1
Mountain States								
Montana.....	2	6		1	11	87	2	4
Idaho.....		1		6	31	4	0	3
Wyoming.....	1	3		1	13	27	0	2
Colorado.....	5	4		4	950	18	3	8
New Mexico.....	9	7		20	81		6	1
Arizona.....	5	6	9	27	38	7	5	8
Utah.....	1	2	3	3	297	9	12	7
Pacific States								
Washington.....	2	5	4	11	281	192	6	15
Oregon.....	4	9	39	58	159	242	1	2
California.....	58	51	28	74	2,524	54	10	27

¹ New York City only.

² Week ended Friday.

³ Figures for 1930 are exclusive of Oklahoma City and Tulsa.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended April 12, 1930, and April 13, 1929—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Apr. 12, 1930	Week ended Apr. 13, 1929	Week ended Apr. 12, 1930	Week ended Apr. 13, 1929	Week ended Apr. 12, 1930	Week ended Apr. 13, 1929	Week ended Apr. 12, 1930	Week ended Apr. 13, 1929
New England States:								
Maine.....	0	1	56	44	0	3	1	9
New Hampshire.....	0	0	20	16	0	0	0	0
Vermont.....	0	0	8	9	2	5	0	0
Massachusetts.....	1	0	292	308	0	1	6	7
Rhode Island.....	0	0	25	22	0	0	0	1
Connecticut.....	0	0	101	67	0	1	1	2
Middle Atlantic States:								
New York.....	1	2	580	483	14	1	6	20
New Jersey.....	1	0	267	180	0	0	4	0
Pennsylvania.....	1	0	519	378	1	0	0	9
East North Central States:								
Ohio.....	0	5	440	285	156	52	5	9
Indiana.....	0	0	212	180	167	48	5	12
Illinois.....	0	1	554	401	130	75	7	10
Michigan.....	0	1	389	585	62	63	8	4
Wisconsin.....	0	1	185	130	16	6	2	0
West North Central States:								
Minnesota.....	0	0	137	90	7	2	4	8
Iowa.....	0	4	105	120	122	46	0	4
Missouri.....	0	0	137	96	53	26	1	4
North Dakota.....	0	0	36	51	19	17	1	1
South Dakota.....	0	0	14	7	51	18	0	0
Nebraska.....	0	0	110	117	105	50	0	0
Kansas.....	0	0	170	181	135	64	1	2
South Atlantic States:								
Delaware.....	0	0	5	2	0	0	0	0
Maryland ¹	1	0	131	63	0	0	6	6
District of Columbia.....	0	0	23	12	0	0	0	0
Virginia.....	1	—	—	—	1	—	—	—
West Virginia.....	0	2	44	0	0	22	6	7
North Carolina.....	1	0	32	47	17	17	3	2
South Carolina.....	1	0	1	14	0	6	5	12
Georgia.....	0	0	20	16	0	0	7	11
Florida.....	0	4	9	5	0	1	2	8
East South Central States:								
Kentucky.....	1	0	55	212	26	52	5	4
Tennessee.....	9	0	57	28	8	5	7	9
Alabama.....	0	1	9	16	8	11	1	11
Mississippi.....	1	0	10	8	15	2	9	4
West South Central States:								
Arkansas.....	0	0	18	10	6	3	0	10
Louisiana.....	0	0	18	47	9	5	16	11
Oklahoma ¹	0	0	20	29	74	85	4	8
Texas.....	0	0	42	75	67	144	9	1
Mountain States:								
Montana.....	0	0	35	29	20	14	1	6
Idaho.....	0	0	2	21	9	15	0	0
Wyoming.....	0	1	1	35	5	10	0	1
Colorado.....	0	0	40	53	15	18	0	3
New Mexico.....	0	0	13	20	4	1	0	0
Arizona.....	0	0	19	11	31	8	0	0
Utah ¹	0	0	13	11	0	9	0	0
Pacific States:								
Washington.....	0	0	51	34	97	37	2	3
Oregon.....	0	0	17	41	16	28	1	0
California.....	3	0	163	476	105	36	5	1

¹ Week ended Friday.¹ Figures for 1930 are exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Men- gococ- cus menin- gitis	Diph- theria	Influ- enza	Ma- laria	Mea- sles	Pei- lagra	Polio- mye- litis	Scarlet fever	Small- pox	Ty- phoid fever
<i>February, 1930</i>										
Florida.....	5	45	20	27	445	2	0	45	8	14
<i>March, 1930</i>										
District of Columbia	2	64	12		40	1	1	71	0	
Florida.....	1	30	17	22	1,388	4	2	31	1	7
Georgia.....	34	44	595	170	1,018	33	3	103	7	20
Indiana.....	89	106	72		493		0	961	781	12
Michigan.....	147	288	25		4,231	1	4	1,472	320	10
Nebraska.....	11	79	22		2,036		3	354	163	
New Hampshire	1	17	36				1	77		1
New Jersey.....	26	523	92	1	3,209		2	1,195	0	15
New York.....	61	607		7	3,088		6	2,549	41	71
North Dakota.....	11	14	33		131			124	71	11
Pennsylvania.....	48	601			4,865		2	2,123	7	47

<i>February, 1930</i>		<i>March, 1930</i>	
Florida.....	Cases	Florida.....	Cases
Chicken pox.....	329	Georgia.....	324
Dysentery.....	2	Indiana.....	49
Mumps.....	378	Michigan.....	841
Typhus fever.....	14	Nebraska.....	156
Whooping cough.....	43	New York.....	2,852
		North Dakota.....	202
		Pennsylvania.....	1,712
		Lethargic encephalitis:	
		District of Columbia.....	1
		Michigan.....	3
		New York.....	14
		North Dakota.....	4
		Pennsylvania.....	8
		Mumps:	
		Florida.....	492
		Georgia.....	324
		Indiana.....	49
		Michigan.....	841
		Nebraska.....	156
		New York.....	2,852
		North Dakota.....	202
		Pennsylvania.....	1,712
		Ophthalmia neonatorum:	
		New Jersey.....	5
		New York.....	4
		Paratyphoid fever:	
		Georgia.....	3
		New York.....	16
		Puerperal fever:	
		New York.....	12
		Rabies in animals:	
		New York.....	22
		Rabies in man:	
		Michigan.....	1
		New Jersey.....	1
		Scabies:	
		North Dakota.....	8
		Septic sore throat:	
		Georgia.....	16
		Michigan.....	24
		Nebraska.....	37
		New York.....	15
		Tetanus:	
		Georgia.....	1
		New York.....	2

	Cases	Vincent's angina:	Cases
Trachoma:		New York ¹	113
New York.....	2	North Dakota.....	30
Tularaemia:		Whooping cough:	
Georgia.....	2	District of Columbia.....	37
Typhus fever:		Florida.....	79
Florida.....	2	Georgia.....	175
Georgia.....	11	Indiana.....	205
New York.....	1	Michigan.....	546
Undulant fever:		Nebraska.....	103
Michigan.....	1	New Jersey.....	624
Nebraska.....	1	New York.....	1,990
New York.....	8	North Dakota.....	97
Pennsylvania.....	5	Pennsylvania.....	1,458

¹ Exclusive of New York City.

Cases of Certain Communicable Diseases Reported for the Month of January, 1930, by State Health Officers

State	Chick- en pox	Diph- theria	Mea- sles	Mumps	Scarlet fever	Small- pox	Tuber- culosis	Ty- phoid and para- typhoid fever	Whoop- ing cough
Maine.....	271	13	8	297	221	0	30	11	153
New Hampshire.....		18			97	0		0	
Vermont.....	272	9	82	27	75	53	17	0	69
Massachusetts.....	1,697	563	1,153	1,005	1,496	0	584	24	1,710
Rhode Island.....	128	75	7	3	147	0	50	2	105
Connecticut.....	756	108	190	197	502	0	132	1	292
New York.....	3,515	649	1,893	2,103	2,075	58	1,730	71	2,171
New Jersey.....	1,632	529	832		1,138	0	454	14	789
Pennsylvania.....	4,065	874	2,004	1,305	2,077	8	598	59	1,726
Ohio.....	2,475	306	2,992	582	1,350	1,068	580	33	969
Indiana.....	484	125	312	8	772	889	137	8	169
Illinois.....	2,180	858	1,616	655	2,442	625	940	46	1,096
Michigan.....	1,609	418	1,264	514	1,617	381	221	11	820
Wisconsin.....	2,033	108	4,130	009	722	263	138	14	1,271
Minnesota.....	758	110	930		581	35	156	21	174
Iowa.....		55			378	551		5	
Missouri.....	306	174	219	91	416	210	147	17	140
North Dakota.....	136	38	116	329	257	130	25	1	54
South Dakota.....	141	10	295	35	128	257	8	1	36
Nebraska.....	271	67	1,716	125	382	324	15	3	109
Kansas.....	666	84	970	392	619	273	149	7	271
Delaware.....	96	27	5	3	90	0	115	2	31
Maryland.....	452	117	45	84	378	0	193	22	146
District of Columbia.....	119	70	12		83	0	90	1	30
Virginia.....	699	201	894		315	53	107	26	1,075
West Virginia.....	216	60	325	8	148	92	29	20	290
North Carolina.....	1,088	259	71		319	151		5	1,198
South Carolina.....	309	185	38	131	95	8	131	32	408
Georgia.....	172	71	278	85	98	6	04	20	90
Florida.....	207	51	116	266	81	4	45	12	39
Kentucky ¹									
Tennessee.....	152	65	467	46	154	54	124	28	98
Alabama.....	331	132	80	42	156	51	230	25	231
Mississippi.....	1,052	89	398	416	113	2	239	15	929
Arkansas.....	251	32	21	80	95	79	118	14	35
Louisiana.....	67	161	172	12	89	27	113	44	21
Oklahoma ²	71	136	307	84	166	281	33	27	49
Texas ²									
Montana.....	65	9	99	515	181	44	29	1	13
Idaho.....	109	13	448	64	80	123	6	7	49
Wyoming.....	47	6	47	42	29	49		1	8
Colorado.....	361	24	235	185	144	120	93	7	66
New Mexico.....	114	49	308	132	45	12	76	7	20
Arizona.....	167	44	13	293	71	146	256	7	51
Utah ²									
Nevada.....			33	1	22		110		
Washington.....	620	44	551	436	319	450	119	14	174
Oregon.....	270	47	81	156	212	103	73	5	83
California.....	2,414	425	2,707	2,586	1,669	614	958	26	578

¹ Pulmonary.² Reports received weekly.³ Exclusive of Oklahoma City and Tulsa.

Case Rates Per 1,000 Population (Annual Basis) for the Month of January, 1930

[The rates here given have been calculated by use of populations as of July 1, 1930, approximated, authoritative estimates not being available, and may prove to be inaccurate when the results of the fifteenth census are known]

State	Chick- en pox	Diph- theria	Meas- les	Mumps	Scarlet fever	Small- pox	Tuber- culosis	Ty- phoid and para- typhoid fever	Whoop- ing cough
Maine.....	3.99	0.19	0.12	4.38	3.26	0.00	0.44	0.16	2.25
New Hampshire.....	.....	.46	.....	.....	2.49	.00	.....	.00	.....
Vermont.....	9.09	.30	2.74	.90	2.51	1.77	.57	.00	2.31
Massachusetts.....	4.55	1.51	3.09	2.70	4.02	.00	1.57	.06	4.59
Rhode Island.....	2.04	1.19	.11	.05	2.34	.00	.80	.03	1.67
Connecticut.....	5.15	.71	1.36	1.31	3.42	.00	.90	.01	1.99
New York.....	3.50	.65	1.89	2.10	2.07	.06	1.72	.07	2.16
New Jersey.....	4.85	1.57	2.77	.....	3.38	.00	1.35	.04	2.34
Pennsylvania.....	4.74	1.02	3.11	1.52	2.42	.01	.70	.07	2.01
Ohio.....	4.13	.51	4.99	.97	2.25	1.73	.97	.06	1.62
Indiana.....	1.77	.46	1.14	.03	2.82	3.24	.50	.03	.62
Illinois.....	3.38	1.33	2.50	1.02	3.79	.07	1.46	.07	1.70
Michigan.....	3.95	1.03	3.11	1.26	3.97	.94	.54	.03	2.01
Wisconsin.....	7.92	.42	16.09	2.37	2.81	1.02	.51	.05	4.95
Minnesota.....	3.19	.46	3.92	.....	2.45	.15	.66	.09	.73
Iowa.....	.....	.27	.....	.....	1.83	2.67	.....	.02	.....
Missouri.....	1.02	.58	.73	.30	1.38	.70	.49	.06	.46
North Dakota.....	2.50	.70	2.13	6.04	4.72	2.39	.40	.02	.99
South Dakota.....	2.35	.16	4.82	.57	2.09	4.20	.13	.02	.59
Nebraska.....	2.23	.55	11.11	1.03	3.11	2.66	.12	.02	.90
Kansas.....	4.24	.53	0.18	2.50	3.94	1.74	.95	.04	1.73
Delaware.....	4.50	1.29	.24	.14	4.31	.00	1.72	.10	1.48
Maryland.....	3.22	.83	.32	.60	2.69	.00	1.37	.16	1.04
District of Columbia.....	2.41	1.42	.24	.....	1.68	.00	1.82	.02	.61
Virginia.....	3.13	.90	4.00	.....	1.41	.24	.48	.12	4.81
West Virginia.....	1.43	.40	2.15	.05	.98	.61	.19	.17	1.92
North Carolina.....	4.24	1.01	.28	.....	1.24	.59	.....	.02	4.67
South Carolina.....	1.91	1.15	.24	.81	.59	.05	.81	.20	2.90
Georgia.....	.62	.26	1.00	.31	.35	.02	.23	.07	.32
Florida.....	1.62	.40	.91	2.08	.63	.03	.35	.09	.30
Kentucky ¹.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tennessee.....	.71	.30	2.17	.21	.72	.25	.58	.13	.46
Alabama.....	1.49	.59	.36	.19	.70	.23	1.03	.11	1.04
Mississippi.....	6.92	.69	2.62	2.74	.71	.01	1.57	.10	6.11
Arkansas.....	1.49	.19	.12	.47	.56	.47	1.11	.08	.21
Louisiana.....	.40	.96	1.02	.07	.53	.16	.67	.26	.12
Oklahoma ¹.....	.38	.73	1.64	.45	.89	1.50	.18	.14	.28
Texas ².....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Montana.....	1.39	.19	2.12	11.05	3.88	.94	.62	.02	.28
Idaho.....	2.25	.27	9.25	1.32	1.65	2.54	.12	.14	1.01
Wyoming.....	2.14	.27	2.14	1.01	1.32	2.23	.....	.05	.30
Colorado.....	3.79	.25	2.47	1.94	1.51	1.20	.98	.07	.69
New Mexico.....	3.32	1.43	10.72	3.85	1.31	.35	2.21	.20	.58
Arizona.....	3.90	1.03	.30	6.84	1.66	3.41	5.98	.16	1.19
Utah ².....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Nevada.....	.....	.....	.50	.02	.33	.....	1.15	.....	.....
Washington.....	4.46	.32	3.96	8.14	2.29	3.24	.86	.10	1.25
Oregon.....	3.43	.60	1.03	1.98	2.70	1.81	.93	.06	1.06
California.....	5.92	1.04	6.86	6.34	4.09	1.51	2.35	.06	1.42

¹ Pulmonary.

² Reports received weekly.

³ Exclusive of Oklahoma City and Tulsa.

PATIENTS IN INSTITUTIONS FOR THE FEEBLE-MINDED, APRIL TO JUNE, 1929

Reports for the second quarter of the year 1929 have been received by the Public Health Service from 27 institutions located in 23 States, including 1 institution for females only with more than 1,200 patients. The total number of patients in these institutions on June 30, 1929, including those on temporary leave or otherwise absent but still on books, was 32,062.

The first admissions were as follows:

Month	Male	Female	Total
April.....	182	212	394
May.....	160	173	333
June.....	156	170	326
Total.....	498	555	1,053

Of the first admissions during the three months, 47.3 per cent were males and 52.7 per cent were females, the ratio being 90 males per 100 females. On June 30, 1929, there were 16,190 male and 15,872 female patients on the books. During the three months 316 patients were discharged, and 150 male patients and 97 female patients died.

The annual death rates, based on the estimated number of patients on the books of the institutions the middle of May, were: Males, 37.4 per 1,000; females, 21.7 per 1,000; persons, 31.2 per 1,000.

The following table shows the number of patients in the institutions and on temporary leave on April 1, and at the end of each month, and the percentage of the total patients who were on leave:

	Apr 1, 1929	Apr 30, 1929	May 31, 1929	June 30, 1929
Patients in institutions:				
Male.....	13,714	13,808	13,806	13,547
Female.....	13,734	13,876	13,915	13,763
Total.....	27,448	27,684	27,723	27,300
Patients on temporary leave:				
Male.....	2,304	2,211	2,309	2,643
Female.....	1,806	1,791	1,863	2,119
Total.....	4,110	4,002	4,172	4,762
Total patients on books:				
Male.....	16,018	16,019	16,117	16,190
Female.....	15,540	15,667	15,778	15,872
Total.....	31,558	31,686	31,895	32,062
Per cent of total patients on temporary leave:				
Male.....	14.4	13.8	14.3	16.3
Female.....	11.6	11.4	11.8	13.4
Total.....	13.0	12.6	13.1	14.9

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 95 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 31,705,000. The estimated population of the 88 cities reporting deaths is more than 30,110,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Week ended April 5, 1930, and April 6, 1929

	1930	1929	Estimated expectancy
<i>Cases reported</i>			
Diphtheria:			
46 States.....	1, 181	1, 379	
95 cities.....	492	791	877
Measles:			
45 States.....	16, 844	13, 877	
95 cities.....	6, 328	5, 053	
Meningococcus meningitis:			
46 States.....	275	319	
95 cities.....	150	131	
Pollomyelitis.			
47 States.....	21	15	
Scarlet fever.			
46 States.....	4, 855	5, 431	
95 cities.....	1, 870	1, 757	1, 470
Smallpox:			
46 States.....	1, 673	1, 069	
95 cities.....	146	65	66
Typhoid fever:			
46 States.....	156	182	
95 cities.....	28	28	34
<i>Deaths reported</i>			
Influenza and pneumonia:			
88 cities.....	1, 021	967	
Smallpox.			
88 cities.....	0	2	
Boston, Mass.....	0	1	
Fort Worth, Tex.....	0	1	

City reports for week ended April 5, 1930

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1921 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND								
Maine								
Portland	17	1	0	1	0	3	22	2
New Hampshire.								
Concord	0	0	0		0	0	0	0
Manchester	0	1	0		0	5	0	4
Nashua	0	0	1		0	4	0	0
Vermont								
Barre	3	0	0		0	4	2	2
Burlington	0	1	0		0	0	0	0
Massachusetts								
Boston	51	35	15	6	0	486	50	74
Fall River	7	3	3	2	2	0	2	4
Springfield	17	3	2		0	3	8	2
Worcester	11	4	2		0	99	1	3
Rhode Island								
Pawtucket	1	0	2		0	0	0	3
Providence	11	8	2		0	0	1	9
Connecticut								
Bridgeport	2	5	0	1	1	0	0	3
Hartford	6	5	2		0	3	0	6
New Haven		1						
MIDDLE ATLANTIC								
New York								
Buffalo	22	12	7		0	16	14	19
New York	265	254	96	58	15	864	223	236
Rochester	17	8	2		0	16	3	5
Syracuse	55	6	1		1	0	74	4
New Jersey								
Camden	11	7	4	1	2	0	0	3
Newark	52	14	26	12	1	473	22	15
Trenton	4	3	5		0	19	0	2
Pennsylvania								
Philadelphia	105	66	11	12	7	165	94	85
Pittsburgh	20	15	10		5	181	7	33
Reading	3	2	2		0	3	3	4
Scranton	2	3	0		0	4	2	
EAST NORTH CENTRAL								
Ohio:								
Cincinnati	5	8	4		1	30	3	11
Cleveland	103	27	9	10	4	8	30	23
Columbus	8	3	2		0	87	12	5
Toledo	30	4	3		0	133	9	12
Indiana:								
Fort Wayne	1	2	1		0	0	0	5
Indianapolis	21	4	1		1	8	1	23
South Bend	1	1	0		0	1	0	3
Terre Haute	0	1	0		0	0	0	1
Illinois:								
Chicago	113	93	107	11	5	66	94	93
Springfield	10	1	0	3	1	3	0	

City reports for week ended April 5, 1930—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST NORTH CENTRAL—continued								
Michigan:								
Detroit.....	84	45	46	3	1	1,047	87	47
Flint.....	15	3	0		0	11	1	5
Grand Rapids.....	2	1	0		2	1	0	8
Wisconsin:								
Kenosha.....	15	0	0		0	2	1	0
Madison.....	2	0	2		0	80	0	4
Milwaukee.....	173	14	2		1	11	80	12
Racine.....	0	2	0		0	9	0	0
Superior.....	2	0	0		0	4	0	0
WEST NORTH CENTRAL								
Minnesota:								
Duluth.....	6	0	0		0	56	0	0
Minneapolis.....	58	13	1		1	31	67	7
St. Paul.....	43	9	2		0	5	38	5
Iowa:								
Davenport.....	0	1	0			3	3	
Des Moines.....	3	1	0			27	5	
Sioux City.....	2	1	1			84	9	
Waterloo.....	24	0	0			19	0	
Missouri:								
Kansas City.....	14	4	2		0	7	4	11
St. Joseph.....	5	1	1		0	0	0	3
St. Louis.....	40	39	13	1	1	9	18	
North Dakota:								
Fargo.....	3	0	0		0	0	17	0
Grand Forks.....	0	0	0			0	0	
South Dakota:								
Aberdeen.....	27	0	0			1	3	
Sioux Falls.....	0	1	0			18	0	
Nebraska:								
Omaha.....	15	2	5		0	70	1	9
Kansas:								
Topeka.....	12	1	0	1	1	128	11	2
Wichita.....	8	2	2		0	35	1	2
SOUTH ATLANTIC								
Delaware:								
Wilmington.....	3	2	1		0	4	0	5
Maryland:								
Baltimore.....	194	25	10	6	0	11	11	37
Cumberland.....	1	0	0		0	0	0	3
Frederick.....	1	0	0		0	0	0	1
District of Columbia:								
Washington.....	31	11	8	1	0	8	0	19
Virginia:								
Lynchburg.....	7	1	0		0	91	14	3
Norfolk.....	11	0	0		0	0	52	2
Richmond.....	0	1	0		0	27	3	0
Roanoke.....	0	1	1		2	193	0	3
West Virginia:								
Charleston.....	14	0	1	1	0	6	2	0
Wheeling.....	7	0	0		0	2	0	1
North Carolina:								
Raleigh.....	0	0	0		0	0	0	2
Wilmington.....	8	0	1		0	0	0	5
Winston-Salem.....	45	0	2		0	0	17	1
South Carolina:								
Charleston.....	9	0	2	47	0	0	3	3
Columbia.....	2	0	0		0	0	5	4
Georgia:								
Atlanta.....	8	3	1	22	2	40	21	9
Brunswick.....	0	0	0		0	0	1	0
Savannah.....	3	0	1	5	0	2	0	1
Florida:								
Miami.....	19	3	3		0	1	0	3
St. Petersburg.....		0	0		0			0
Tampa.....	13	1	4		0	49	22	1

City reports for week ended April 5, 1930—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST SOUTH CENTRAL								
Kentucky:								
Covington.....	0	1	0	-----	0	0	0	1
Tennessee:								
Memphis.....	20	3	3	-----	1	2	32	6
Nashville.....	0	1	1	-----	1	2	0	11
Alabama:								
Birmingham.....	9	2	0	5	2	7	1	5
Mobile.....	1	1	0	2	2	10	0	1
Montgomery.....	4	0	1	3	-----	67	0	-----
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith.....	1	0	0	-----	-----	22	0	-----
Little Rock.....	8	0	0	-----	0	9	3	2
Louisiana:								
New Orleans.....	6	9	17	3	5	37	0	17
Shreveport.....	17	0	2	-----	0	1	7	4
Oklahoma:								
Oklahoma City.....	4	1	0	10	0	84	5	8
Texas:								
Dallas.....	9	4	6	-----	2	138	3	6
Fort Worth.....	9	1	1	-----	0	22	1	3
Galveston.....	0	0	0	-----	0	0	0	0
Houston.....	3	3	11	-----	0	2	1	5
San Antonio.....	-----	3	-----	-----	-----	-----	-----	-----
MOUNTAIN								
Montana:								
Billings.....	0	1	0	-----	0	0	5	2
Great Falls.....	-----	0	-----	-----	-----	-----	-----	-----
Helena.....	0	0	0	-----	0	0	1	0
Missoula.....	0	0	0	-----	0	1	1	1
Idaho:								
Boise.....	0	0	0	-----	0	0	0	0
Colorado:								
Denver.....	48	8	2	-----	2	385	38	10
Pueblo.....	6	1	0	-----	0	6	83	1
New Mexico:								
Albuquerque.....	17	0	1	-----	0	14	8	2
Arizona:								
Phoenix.....	3	1	0	-----	0	16	1	4
Utah:								
Salt Lake City.....	11	3	1	-----	1	144	9	7
Nevada:								
Reno.....	0	0	0	-----	0	0	0	0
PACIFIC								
Washington:								
Seattle.....	41	3	1	-----	-----	245	109	-----
Spokane.....	24	2	0	-----	-----	1	0	-----
Tacoma.....	6	1	2	-----	0	56	0	3
Oregon:								
Portland.....	21	8	7	-----	0	15	13	7
Salem.....	13	0	1	-----	0	2	7	0
California:								
Los Angeles.....	128	39	17	13	0	375	58	13
Sacramento.....	8	2	1	-----	0	20	26	3
San Francisco.....	50	19	4	2	0	293	106	6

City reports for week ended April 5, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- cul- osis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
NEW ENGLAND											
Maine:											
Portland.....	3	3	0	0	0	1	0	0	0	1	25
New Hampshire:											
Concord.....	1	1	0	0	0	2	0	0	0	0	15
Manchester.....	3	0	0	0	0	0	0	2	0	0	25
Nashua.....	1	0	0	0	0	0	0	0	0	0	-----
Vermont:											
Barre.....	0	0	0	0	0	0	0	0	0	0	5
Burlington.....	1	0	0	0	0	0	0	0	0	0	11
Massachusetts:											
Boston.....	78	90	0	0	0	15	1	1	0	48	250
Fall River.....	5	2	0	0	0	1	0	0	0	2	28
Springfield.....	9	15	0	0	0	2	0	0	0	7	38
Worcester.....	9	18	0	0	0	2	0	1	0	26	65
Rhode Island:											
Pawtucket.....	2	3	0	0	0	0	0	0	0	7	32
Providence.....	11	14	0	0	0	3	0	0	0	14	81
Connecticut:											
Bridgeport.....	11	22	0	0	0	4	1	0	0	0	34
Hartford.....	5	5	0	0	0	1	0	0	0	2	38
New Haven.....	10	-----	0	-----	-----	-----	0	-----	-----	-----	-----
MIDDLE ATLANTIC											
New York:											
Buffalo.....	28	26	0	0	0	11	0	0	0	19	100
New York.....	355	363	0	0	0	135	9	7	2	50	1,731
Rochester.....	14	12	0	0	0	5	0	0	0	0	82
Syracuse.....	11	27	0	0	0	0	0	0	0	38	51
New Jersey:											
Camden.....	6	1	0	0	0	2	0	0	0	0	43
Newark.....	36	32	0	0	0	6	0	0	0	28	112
Trenton.....	5	7	0	0	0	2	1	0	0	3	34
Pennsylvania:											
Philadelphia.....	105	158	0	0	0	38	2	0	0	18	563
Pittsburgh.....	30	16	0	0	0	11	0	0	0	20	195
Reading.....	6	3	0	0	0	0	0	0	0	13	32
Scranton.....	3	7	0	0	-----	-----	0	-----	-----	2	-----
EAST NORTH CENTRAL											
Ohio:											
Cincinnati.....	17	25	1	12	0	13	0	0	0	1	165
Cleveland.....	35	61	0	1	0	17	0	1	1	58	201
Columbus.....	9	14	1	5	0	2	0	0	0	19	91
Toledo.....	12	19	1	5	0	3	1	0	0	3	89
Indiana:											
Fort Wayne.....	6	4	1	4	0	0	0	0	0	1	27
Indianapolis.....	9	11	8	3	0	4	1	0	0	5	-----
South Bend.....	4	10	0	0	0	1	0	0	0	0	24
Terre Haute.....	2	7	0	0	0	1	0	0	0	0	29
Illinois:											
Chicago.....	127	280	2	6	0	55	1	0	0	60	819
Springfield.....	4	2	0	0	0	1	0	0	0	4	19
Michigan:											
Detroit.....	111	145	1	16	0	38	1	1	0	73	346
Flint.....	11	9	2	1	0	2	0	0	0	15	25
Grand Rapids.....	9	4	0	0	0	0	1	0	0	6	57
Wisconsin:											
Kenosha.....	2	1	0	0	0	0	0	0	0	13	8
Madison.....	4	3	0	1	0	0	0	0	0	20	80
Milwaukee.....	30	29	0	0	0	6	1	1	0	47	111
Racine.....	4	5	0	0	0	0	0	0	0	7	20
Superior.....	4	1	0	0	0	0	-----	-----	0	0	7
WEST NORTH CENTRAL											
Minnesota:											
Duluth.....	8	1	0	0	0	2	0	0	0	10	18
Minneapolis.....	50	17	3	1	0	1	0	0	0	5	94
St. Paul.....	33	15	0	0	0	6	0	0	0	30	66

City reports for week ended April 5, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
WEST NORTH CENTRAL—CON											
Iowa:											
Davenport.....	2	1	0	4			0	0		0	
Des Moines.....	8	14	2	7			0	0		0	33
Sauk City.....	2	2	1	2			0	0		6	
Waterloo.....	3	0	0	19			0	0		0	
Missouri:											
Kansas City.....	20	40	2	1	0	8	0	0	0	10	112
St. Joseph.....	2	4	0	0	0	1	0	0	0	0	18
St. Louis.....	38	33	2	5	0	14	1	1	0	12	255
North Dakota:											
Fargo.....	1	0	0	0	0	0	0	0	0	5	7
Grand Forks.....	1	2	0	2			0	0		1	
South Dakota:											
Aberdeen.....	0	0	0	1			0	0		0	
Sauk Falls.....	2	0	0	3			0	0		0	9
Nebraska:											
Omaha.....	3	4	3	15	0	6	0	0	0	3	60
Kansas:											
Topeka.....	4	1	0	0	0	0	0	0	0	15	20
Wichita.....	4	23	2	2	0	0	0	0	0	0	32
SOUTH ATLANTIC											
Delaware:											
Wilmington.....	5	4	0	0	0	3	0	0	0	1	34
Maryland:											
Baltimore.....	32	84	0	0	0	25	2	0	0	27	249
Cumberland.....	0	0	0	0	0	1	0	0	0	0	15
Frederick.....	0	0	0	0	0	0	0	0	0	0	5
District of Col.:											
Washington.....	25	17	1	0	0	12	0	0	0	9	176
Virginia:											
Lynchburg.....	0	0	0	0	0	1	0	0	0	16	13
Norfolk.....	2	0	0	0	0	1	0	0	0	1	
Richmond.....	2	7	0	0	0	3	0	0	0	1	58
Roanoke.....	1	1	0	0	0	1	0	0	0	9	17
West Virginia:											
Charleston.....	1	0	0	0	0	0	0	1	0	13	23
Wheeling.....	2	1	0	0	0	1	0	0	0	3	23
North Carolina:											
Raleigh.....	0	0	0	1	0	0	0	0	0	1	13
Wilmington.....	0	0	0	0	0	1	0	0	0	8	17
Winston-Salem.....	1	1	2	0	0	2	0	0	0	2	21
South Carolina:											
Charleston.....	0	0	0	0	0	2	0	1	1	2	33
Columbia.....	0	0	1	0	0	2	0	0	0	9	24
Georgia:											
Atlanta.....	4	20	3	0	0	1	1	0	0	0	74
Brunswick.....	0	0	0	0	0	0	0	0	0	0	3
Savannah.....	0	3	0	0	0	1	1	0	0	1	29
Florida:											
Miami.....	1	0	0	0	0	2	1	0	0	1	43
St. Petersburg.....	0	0	0	0	0	0	0	0	0	0	17
Tampa.....	0	0	0	0	0	4	1	0	0	0	23
EAST SOUTH CENTRAL											
Kentucky:											
Covington.....	2	2	0	0	0	2	0	0	0	0	20
Tennessee:											
Memphis.....	8	11	2	0	0	4	0	4	0	12	98
Nashville.....	3	5	1	0	0	5	0	0	0	0	82
Alabama:											
Birmingham.....	2	4	5	0	0	5	0	1	1	3	67
Mobile.....	1	2	0	0	0	0	1	0	1	0	24
Montgomery.....	0	0	1	0			0	0		1	

City reports for week ended April 5, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culosis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
WEST SOUTH CENTRAL											
Arkansas											
Fort Smith	1	2	0	0			0	0		2	
Little Rock	1	5	0	3	0	1	0	0	0	0	
Louisiana											
New Orleans	6	16	0	0	0	13	2	3	0	2	159
Shreveport	0	2	0	0	0	1	0	0	0	2	35
Oklahoma											
Oklahoma City	3	19	3	20	0	4	0	0	0	0	39
Texas											
Dallas	4	12	2	2	0	3	1	0	0	0	57
Fort Worth	2	5	6	7	0	0	0	0	0	0	36
Galveston	0	0	0	0	0	2	0	0	0	0	14
Houston	1	5	1	0	0	1	1	0	0	0	64
San Antonio	0		1				1				
MOUNTAIN											
Montana											
Billings	0	0	0	0	0	1	0	0	0	0	11
Great Falls	1		0				0				
Helena	0	1	0	0	0	0	0	0	0	2	4
Missoula	1	0	0	0	0	1	0	0	0	0	7
Idaho											
Boise	0	3	0	1	0	0	0	0	0	0	5
Colorado											
Denver	12	9	0	1	0	7	0	0	0	54	102
Pueblo	2	6	0	7	0	0	0	0	0	0	8
New Mexico											
Albuquerque	1	1	0	0	0	4	0	0	0	0	11
Arizona											
Phoenix	0	1	0	5	0	5	0	0	0	1	19
Utah											
Salt Lake City	2	4	1	0	0	0	0	2	0	17	53
Nevada											
Reno	0	0	0	3	0	0	0	0	0	0	1
PACIFIC											
Washington											
Seattle	8	20	3	6			1	0		13	
Spokane	6	0	9	11			0	0		25	
Tacoma	3	4	3	6	0	1	0	0	0	6	29
Oregon											
Portland	5	4	10	13	0	3	0	1	0	9	62
Salem	0	0	1	0	0	0	0	0	0	5	
California											
Los Angeles	32	34	2	3	0	35	1	2	0	33	250
Sacramento	2	2	0	8	0	5	1	6	0	1	32
San Francisco	20	23	1	1	0	19	1	1	0	2	159

City reports for week ended April 5, 1930—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Massachusetts									
Boston.....	3	3	0	0	0	0	0	0	0
Fall River.....	1	1	0	0	0	0	0	0	0
Worcester.....	1	0	0	0	0	0	0	0	0
Connecticut									
Hartford.....	1	0	0	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York									
New York ¹	18	7	2	1	0	0	1	0	0
Pennsylvania									
Philadelphia.....	2	2	0	0	0	0	0	0	0
Pittsburgh.....	3	2	0	0	0	0	0	0	0
Reading.....	0	0	0	0	0	0	0	1	1
EAST NORTH CENTRAL									
Ohio									
Cleveland.....	5	2	0	0	0	0	1	0	0
Toledo.....	1	1	0	0	0	0	0	0	0
Indiana									
Fort Wayne.....	2	1	0	0	0	0	0	0	0
Indianapolis.....	8	5	0	0	0	0	0	0	0
Terre Haute.....	0	1	0	0	0	0	0	0	0
Illinois									
Chicago.....	10	3	1	0	0	0	0	0	0
Springfield.....	0	1	0	0	0	0	0	0	0
Michigan									
Detroit.....	25	10	0	0	0	0	0	0	1
Flint.....	1	1	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota									
Minneapolis.....	0	1	0	0	0	0	0	0	0
St. Paul.....	1	0	0	0	0	0	0	0	0
Iowa									
Sioux City.....	2	0	0	0	0	0	0	0	0
Waterloo.....	2	1	0	0	0	0	0	0	0
Missouri									
Kansas City.....	8	1	0	0	0	0	0	0	0
St. Louis.....	7	5	0	0	0	0	0	0	0
SOUTH ATLANTIC									
Maryland									
Baltimore.....	1	0	0	2	0	0	0	1	0
North Carolina									
Wilmington.....	2	0	0	0	0	0	0	0	0
Winston-Salem.....	0	0	0	0	0	1	0	0	0
South Carolina									
Charleston.....	0	0	0	0	2	0	0	0	0
Columbia.....	0	1	0	0	0	0	0	0	0
Georgia									
Atlanta.....	1	0	0	0	0	0	0	0	0
Savannah.....	0	0	0	0	1	1	0	0	0
Florida									
Tampa.....	0	0	0	0	0	1	0	0	0
EAST SOUTH CENTRAL									
Tennessee									
Memphis.....	14	11	0	0	0	0	0	0	0
Nashville.....	0	2	0	0	0	2	0	0	0
Alabama									
Birmingham.....	1	0	0	0	0	0	0	0	0
Mobile.....	1	0	0	0	0	0	0	0	0

¹ Typhus fever. 1 case and 1 death at New York City.² Delayed report³ Nonresident.

City reports for week ended April 5, 1930—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith.....	1	0	0	0	0	0	0	0	0
Louisiana:									
New Orleans.....	0	0	1	0	0	0	0	0	0
Shreveport.....	0	0	0	0	0	1	0	0	0
Oklahoma:									
Oklahoma City.....	0	0	0	0	0	1	0	0	0
Texas:									
Dallas.....	0	0	0	0	1	0	0	0	0
Fort Worth.....	0	0	0	0	0	1	0	0	0
MOUNTAIN									
Montana:									
Helena.....	1	0	0	0	0	0	0	0	0
Utah:									
Salt Lake City.....	17	6	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle.....	4	0	0	0	0	0	0	0	0
Spokane.....	1	0	0	0	0	0	0	0	0
Tacoma.....	1	1	0	0	0	0	0	0	0
California:									
Los Angeles.....	2	1	0	1	0	0	0	2	0
San Francisco.....	1	0	0	0	0	0	0	0	0

The following table gives the rates per 100,000 population for 98 cities for the 5-week period ended April 5, 1930, compared with those for a like period ended April 6, 1929. The population figures used in computing the rates are approximate estimates, authoritative figures for many of the cities not being available. The 98 cities reporting cases have an estimated aggregate population of more than 32,000,000. The 91 cities reporting deaths have more than 30,500,000 estimated population.

Summary of weekly reports from cities, March 2 to April 5, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929¹

DIPHTHERIA CASE RATES

	Week ended—									
	Mar. 8, 1930	Mar. 9, 1929	Mar. 15, 1930	Mar. 16, 1929	Mar. 22, 1930	Mar. 23, 1929	Mar. 29, 1930	Mar. 30, 1929	Apr. 5, 1930	Apr. 6, 1929
98 cities.....	90	133	² 104	126	100	135	³ 84	128	⁴ 81	131
New England.....	84	108	84	135	60	119	⁵ 53	101	⁶ 08	135
Middle Atlantic.....	89	185	90	159	102	180	84	187	78	190
East North Central.....	95	130	135	121	133	142	115	119	108	125
West North Central.....	118	144	108	152	72	131	⁷ 05	189	51	75
South Atlantic.....	71	67	² 99	84	82	60	64	66	59	52
East South Central.....	40	68	27	55	40	41	⁸ 74	41	34	27
West South Central.....	153	114	120	95	146	118	134	118	⁹ 161	114
Mountain.....	86	61	26	44	86	35	43	44	¹⁰ 27	44
Pacific.....	45	36	73	65	52	68	40	29	50	58

MEASLES CASE RATES

98 cities.....	634	537	² 662	679	793	757	³ 891	716	⁴ 1,041	839
New England.....	543	424	680	617	944	563	⁵ 1,108	467	⁶ 1,443	521
Middle Atlantic.....	440	162	418	135	568	179	644	154	832	174
East North Central.....	447	983	476	1,397	543	1,595	661	1,592	807	1,836
West North Central.....	918	1,699	765	1,907	973	1,882	7,737	1,784	842	1,963
South Atlantic.....	499	234	² 449	380	564	451	637	414	793	680
East South Central.....	810	62	715	41	1,457	137	1,093	99	594	89
West South Central.....	542	103	661	141	587	190	841	95	⁹ 936	248
Mountain.....	2,051	818	2,386	636	2,815	768	3,424	409	¹⁰ 4,883	618
Pacific.....	1,845	142	2,194	133	2,100	239	2,549	232	2,343	273

SCARLET FEVER CASE RATES

98 cities.....	329	298	² 346	324	323	345	³ 315	318	⁴ 306	290
New England.....	394	308	390	368	341	364	⁵ 334	391	⁶ 418	341
Middle Atlantic.....	298	228	345	266	310	308	315	264	306	244
East North Central.....	452	411	466	418	422	495	386	453	381	426
West North Central.....	338	356	302	368	328	292	⁷ 297	310	266	275
South Atlantic.....	189	155	² 200	146	262	159	249	167	253	94
East South Central.....	196	198	108	232	202	308	263	267	162	213
West South Central.....	149	270	179	368	116	270	120	274	⁹ 188	270
Mountain.....	292	157	369	157	343	113	446	78	¹⁰ 155	104
Pacific.....	281	410	267	444	236	367	239	311	196	314

SMALLPOX CASE RATES

98 cities.....	25	12	² 25	12	25	11	³ 22	16	⁴ 24	11
New England.....	2	0	0	4	0	7	⁵ 2	11	⁶ 0	2
Middle Atlantic.....	0	0	0	0	0	0	0	0	0	0
East North Central.....	24	18	30	20	20	12	18	17	30	15
West North Central.....	78	6	68	31	95	12	⁷ 94	25	85	17
South Atlantic.....	2	6	² 4	6	2	0	7	13	2	4
East South Central.....	20	7	27	7	7	7	20	41	0	7
West South Central.....	67	95	26	42	52	99	49	91	⁹ 22	76
Mountain.....	9	44	9	17	34	44	26	44	¹⁰ 109	26
Pacific.....	123	17	135	22	120	14	83	22	83	17

¹ The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1930, and 1929, respectively.

² Charleston, W. Va., and Savannah, Ga., not included.

³ Hartford, Conn., and Sioux City, Iowa, not included.

⁴ New Haven, Conn., San Antonio, Tex., and Great Falls, Mont., not included.

⁵ Hartford, Conn., not included.

⁶ New Haven, Conn., not included.

⁷ Sioux City, Iowa, not included.

⁸ San Antonio, Tex., not included.

⁹ Great Falls, Mont., not included.

Summary of weekly reports from cities, March 2 to April 5, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929—Continued.

TYPHOID FEVER CASE RATES

	Week ended—									
	Mar. 8, 1930	Mar. 9, 1929	Mar. 15, 1930	Mar. 16, 1929	Mar. 22, 1930	Mar. 23, 1929	Mar. 29, 1930	Mar. 30, 1929	Apr. 5, 1930	Apr. 6, 1929
98 cities.....	8	5	10	5	8	7	18	10	15	5
New England.....	2	4	4	2	0	7	12	4	15	4
Middle Atlantic.....	4	4	5	4	7	6	15	5	3	2
East North Central.....	3	3	1	2	1	4	3	17	2	7
West North Central.....	8	4	4	2	9	6	14	8	2	4
South Atlantic.....	37	6	12	7	13	6	5	13	4	4
East South Central.....	13	7	27	7	94	27	34	27	34	7
West South Central.....	34	19	7	11	11	8	7	19	13	8
Mountain.....	0	0	51	26	17	0	0	0	18	0
Pacific.....	7	17	12	10	12	19	2	0	7	7

INFLUENZA DEATH RATES

91 cities.....	17	34	14	33	16	27	15	18	13	20
New England.....	18	16	2	25	2	4	10	4	7	11
Middle Atlantic.....	13	25	12	31	14	23	11	12	15	16
East North Central.....	13	31	9	23	9	20	11	16	10	18
West North Central.....	3	21	6	27	12	30	6	18	9	27
South Atlantic.....	33	47	18	37	26	30	15	22	7	17
East South Central.....	66	75	95	119	88	90	110	90	44	75
West South Central.....	34	117	40	102	27	74	34	35	32	47
Mountain.....	34	61	17	35	60	78	51	52	27	44
Pacific.....	3	22	3	16	9	31	3	16	0	19

PNEUMONIA DEATH RATES

91 cities.....	170	203	164	181	165	168	167	157	164	140
New England.....	202	218	155	200	199	186	194	171	161	101
Middle Atlantic.....	191	233	204	197	168	190	197	180	194	178
East North Central.....	142	160	128	155	150	141	118	132	146	135
West North Central.....	127	195	142	180	121	189	133	150	115	147
South Atlantic.....	203	234	183	198	203	185	194	159	170	144
East South Central.....	243	239	265	201	214	172	238	172	177	142
West South Central.....	172	226	153	230	214	78	176	125	157	137
Mountain.....	146	183	120	212	189	165	172	131	191	122
Pacific.....	92	138	80	135	95	163	114	151	77	126

* Charleston, W. Va., and Savannah, Ga., not included.

* New Haven, Conn., San Antonio, Tex., and Great Falls, Mont., not included.

* Hartford, Conn., not included.

* New Haven, Conn., not included.

* San Antonio, Tex., not included.

* Great Falls, Mont., not included.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Week ended March 29, 1930.—The Department of Pensions and National Health reports cases of certain communicable diseases in Canada for the week ended March 29, 1930, as follows:

Province	Cerebro-spinal fever	Influenza	Lethargic encephalitis	Smallpox	Typhoid fever
Prince Edward Island ¹					2
Nova Scotia.....		3			1
New Brunswick.....					1
Quebec.....					17
Ontario.....	4	33		26	19
Manitoba.....	1		1	1	
Saskatchewan.....	2			15	4
Alberta.....	1			2	5
British Columbia.....			1	3	1
Total.....	8	30	2	47	49

¹ No case of any disease included in the table was reported during the week.

ITALY

Communicable diseases—Four weeks ended January 19, 1930.—During the four weeks ended January 19, 1930, certain communicable diseases were reported in Italy as follows:

Disease	Dec 23-29, 1929		Dec 30, 1929—Jan 5, 1930		Jan. 6-12, 1930		Jan. 13-19, 1930	
	Cases	Communes affected	Cases	Communes affected	Cases	Communes affected	Cases	Communes affected
Anthrax.....	23	21	16	16	19	18	35	26
Cerebrospinal meningitis.....	2	2	12	10	6	6	11	8
Chicken pox.....	349	109	324	122	406	135	476	130
Diphtheria and croup.....	693	341	507	280	715	379	806	379
Dysentery.....	6	6						
Lethargic encephalitis.....	1	1			2	2	6	6
Measles.....	1,956	292	1,765	263	1,955	303	2,307	317
Poliomyelitis.....	9	8	7	7	7	6	7	7
Rabies.....	1	1					1	1
Scarlet fever.....	436	156	303	134	332	149	559	167
Typhoid fever.....	493	287	295	194	346	194	553	224

JAMAICA

Communicable diseases—Four weeks ended March 29, 1930.—During the four weeks ended March 29, 1930, cases of certain communicable diseases were reported in Kingston, Jamaica, and in the island of Jamaica outside of Kingston, as follows:

Disease	Kingston	Other localities	Disease	Kingston	Other localities
Chicken pox.....	2	41	Puerperal fever.....		3
Diphtheria.....		1	Scarlet fever.....		1
Dysentery.....	4	6	Tuberculosis.....	26	67
Erysipelas.....		1	Typhoid fever.....	12	56
Leprosy.....		3			

MEXICO

Mexico City—Smallpox—January-March, 1930.—During the first three months of 1930 smallpox cases were reported in Mexico City, Mexico, as follows: January, 29 cases; February, 40 cases; March, 74 cases. The following additional cases were reported in outlying districts of the capital: January, 3 cases; February, 6 cases; March, 26 cases. Somewhat alarming reports have appeared in the press of Mexico City, but the health department is reported to be taking the necessary precautions. While the prevalence of the disease has increased, it has not reached epidemic proportions, and to date the situation is reported not to be alarming.

Tampico—Communicable diseases—March, 1930.—During the month of March, 1930, certain communicable diseases were reported in Tampico, Mexico, as follows:

Dise	Cases	Deaths	Disease	Cases	Deaths
Chicken pox.....	5		Puerperal fever.....		1
Diphtheria.....	2		Smallpox.....	2	3
Enteritis (various).....		26	Tetanus.....	1	
Influenza.....	39	1	Tuberculosis.....	64	24
Malaria.....	83	12	Typhoid fever.....	5	5
Measle.....	6		Whooping cough.....	7	2

PANAMA CANAL ZONE

Communicable diseases—January-February, 1930.—During the months of January and February, 1930, certain communicable diseases, including imported cases, were reported in the Panama Canal Zone and terminal cities as follows:

Disease	January		February	
	Cases	Deaths	Cases	Deaths
Cerebrospinal meningitis.....		1	1	1
Chicken pox.....	32		71	
Diphtheria.....	38		19	1
Dysentery (amebic).....	2	2		
Dysentery (bacillary).....	1	1	137	
Leprosy.....			1	1
Malaria.....	109	4	67	1
Measles.....	20		8	
Mumps.....	6		3	
Pneumonia.....		19		23
Scarlet fever.....			1	
Tuberculosis.....		25		26
Whooping cough.....	17		12	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

From medical officers of the Public Health Service, American consuls, International Office of Public Hygiene, Pan American Sanitary Bureau, health section of the League of Nations, and other sources. The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

CHOLERA

[C indicates cases; D, deaths; P, present]

Place	Week ended—															
	Sept. 22- Oct. 19, 1929	Oct. 20- Nov. 16, 1929	Nov. 17- Dec. 14, 1929	Dec. 15, 1929- Jan. 11, 1930	January, 1930								February, 1930			
					18		25		1		8		15		22	
China:																
Canton.....																
Hankow.....	4	2	2													
Manchuria—Dairen.....											1					
Nanking.....		P														
Shanghai.....	35															
Shanghai.....	11															
Swatow.....	22															
Tientsin.....	P															
India.....	16,354 10,051	17,340 10,680	19,582 10,903	12,350 6,507	1,972 1,122	1,242 718	1,598 818									
Bombay.....	160	252	265	138	44	33	64	65	46	53	105	97	53	110		4
Calcutta.....	70	129	114	80	28	21	23	38	45	27	56	73	25	51		
Madras.....		3	2													
Nagapatam.....		2	2													
Rangoon.....		2	1	6	2	2										
Tatloerin.....	1	2	1	5	2		1	1	1	1	1	1	1	1		
India (French):	18	5	23	35	3											
Chanderagor.....	11	3	6	9	1											
India (Portuguese):	1	5	14	1												
Chanderagor.....		5	12	1												
Karikal.....																
Pondicherry Provinces.....	3		4													
India (Portuguese):	1		3													
India-China (see also table below):																
Panampun.....	61	43	4	3	2	3	3	3	2	5	2	1	2	1		
Panampun.....	63	37	3	3	2	2	2	2	3	3	3	1	2	1		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER--Continued

PLAGUE—Continued

[C indicates cases; D, deaths; P, present]

[illegible]

On vessel:

at Rio de Janeiro. Brazil, from Argentina.

At Rio de Janeiro, Brazil, from Argentina.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place	Week ended—														
	Sept. 22- Oct. 19, 1929	Oct. 20- Nov. 16, 1929	Nov. 17- Dec. 14, 1929	Dec. 15- 1929	February, 1930										Apr. 5, 1930
					January, 1930					March, 1930					
					18	25	1	8	15	22	1	8	15	22		29
Great Britain: England and Wales.....	400	643	994	1,005	414	313	354	374	322	376	439	393	433	361	449
Ashton under Lyne.....	2	1	6	3	2	1	1	1	3	8	7	11	5	4	2
Bradford.....	6	13	20	8				4	2						
Cardiff.....	1		1												
Leeds.....															
London.....	156	174	321	450	168	127	157	156	138	183	183	185	210	124	195
London and Great Towns.....	332	442	783	799	298	239	281	283	225	312	292	297	323	243	350
Newcastle-on-Tyne.....			1		1	1			1		4		1		
State-on-Trent.....	1	9	1	12	3	6		3	2	10	20	9	18	23	40
Greece: Patras.....	5	7	6	1	1										
Hedjaz.....	1	6	1	7											
Honduras: Choluteca.....	2														
India.....	3,111	7,644	12,780	4,765	6,461	7,552	7,736								
Bombay.....	661	1,953	3,730	1,255	1,339	1,751	1,841								
Calcutta.....	16	12	19	85	74	86	97			155	173	198	233	187	
Cochin.....	11	6	54	33	25	50	56			74	95	117	123	114	
Karachi.....	12	6	54	41	25	54	55			73	70	100	105	135	
Madras.....	11	4	39	23	28	40	34			63	52	56	77	128	
Mysore.....	13	96	234	53	61	58	57			62	17	31	74	87	71
Nagpur.....			387	234	58	61	55			8	8	8	14	14	12
Rangoon.....	10	2	7	20	6	11	11			5	5	5	8	14	13
Siam.....	3	1	2	11	2	2	3			4	4	4	5	3	3
Sri Lanka.....	79	58	64	85	10	22	34			39	47	48	38	53	43
Taiwan.....	8	11	11	16	3	3	4			5	4	12	8	9	12
Tientsin.....	3	3	6	18	3	15	18			29	26	39	39	43	40
Yokohama.....	3	2	3	9	2	8	2			6	10	12	15	9	8
Yokohama and Great Towns.....	1	1	1	2	2	3	3			1	1	1	5	1	3
Tientsin.....	1				1	1	1			1	1	1	2	1	2

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER--Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

[illegible]

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER

[C indicates cases; D, deaths; P, present]

[illegible]

Lithuania (see table below).
Mexico: Mexico City, including municipalities in Federal district-----

Morocco.....
Palestine.....
Peru: Arequipa (see table below).

Poland-----
Portugal: Oporto-----
Dumnie

Tunisia.....

Turkey (see table below).

Cape Province.....
Natal.....
Orange Free State.....
Union of South Africa.

Yugoslavia (see table below).

1 Press reports show that 10 deaths from typhus fever occurred in Sao Paulo, Brazil, from Nov. 3 to 30, 1929.

Place	Sep- tember, 1929	Octo- ber, 1929	Novem- ber, 1929	Decem- ber, 1929	Janu- ary, 1930	Febru- ary, 1930
Chosen: Seoul.....	1			1	17	
Czechoslovakia.....	1		3		10	
France: Paris.....	1			1		
Greece: Athens.....	3	7	2	6	12	6
Italy: Livorno.....			2	5		
Lithuania.....	3	6	4	2		70
		1	1	1		5
Penn.: Arequipa.....						D
Turkey.....						C
Yugoslavia.....						C
						D

YELLOW FEVER

During the month of September, 1923, cases of yellow fever were reported as follows: Nictheroy, Brazil, 1 case; Rio de Janeiro, Brazil, 2 cases; Monrovia, Liberia, 1 case.

x

2 1 17 JAN 1930
UNITED STATES TREASURY DEPARTMENT

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SPECIAL ARTICLES

Effect of Radiant Energy on Skin Temperature
Mortality Rates for Certain States for 1929



UNITED STATES
GOVERNMENT PRINTING OFFICE
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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. R. C. WILLIAMS, *Chief of Division*

The PUBLIC HEALTH REPORTS are issued weekly by the United States Public Health Service through its Division of Sanitary Reports and Statistics, pursuant to acts of Congress approved February 15, 1893, and August 14, 1912.

They contain: (1) Current information of the prevalence and geographic distribution of preventable diseases in the United States in so far as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other communicable diseases throughout the world. (2) Articles relating to the cause, prevention, or control of disease. (3) Other pertinent information regarding sanitation and the conservation of the public health.

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PUBLIC HEALTH REPORTS

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NO. 18

EFFECT OF RADIANT ENERGY ON THE SKIN TEMPERATURES OF A GROUP OF STEEL WORKERS

By J. J. BLOOMFIELD, *Assistant Sanitary Engineer*, JAMES E. IVES, *Physicist*, and ROLLO H. BRITTEN, *Associate Statistician, United States Public Health Service*

As a part of a study of respiratory illness, primarily pneumonia, among steel workers, it was found desirable to compare the skin temperatures of workers exposed to radiant energy with the skin temperatures of workers not so exposed. Although the correlation of the measurements made and the sickness records will form a part of a monograph to be published later, it has been thought worth while to describe at this time the instruments devised to measure the radiant energy and the skin temperatures, and to give a general idea as to the results obtained.

The study was undertaken because it had been found that the greatest percentage of time lost in industry on account of sickness was caused by respiratory disease (1) and that pneumonia occurred at almost twice the frequency among iron and steel workers as among the employees of a group of miscellaneous industries. The investigation was possible through the courtesy of the management of one of the largest steel companies, which permitted the United States Public Health Service to establish a unit in a representative steel mill to observe the occurrence of sickness over a period of several years.

Preliminary analysis of the cases occurring over a 4-year period had indicated that the incidence rate of pneumonia was high among workers exposed to inclement weather and among those subjected to wide variations in temperature, especially to extreme heat followed by exposure to much lower temperatures. This fact, together with other investigations, such as the study of the Industrial Fatigue Research Board (2), made it desirable to supplement the clinical and other aspects of the study with observations as to the industrial environment, including exposure to gases, dusts, radiant energy, and general atmospheric conditions, and also with some information as to the physiological responses of workers exposed to extreme heat variations. Investigations by the Research Laboratory of the Ameri-

can Society of Heating and Ventilating Engineers (3) had shown that there was a close correlation between atmospheric conditions (as measured by effective temperature) and body temperature, blood pressure, pulse rate, and skin temperature.

It was concluded, after consideration of the problem, that the simplest physiological response to heat that could be measured on industrial workers, without interfering with their activities, was that of skin temperature. Such a response had the decided advantage of being directly affected by external atmospheric conditions, and of being one of the most important factors affecting heat loss.

On the basis of a detailed occupational analysis in the steel plant under study, including the coke plant, the blast-furnace department, and the open-hearth steel-making and finishing, it was possible to select for observation those workers exposed to radiant energy, as well as a certain number of workers not so exposed. In the exposed group, observations were made on 15 persons. In some cases several readings were made on a person, so that in all 40 readings for a skin temperature of a particular part of the body were obtained. In the nonexposed group there were 18 subjects, and 31 readings for a particular part of the body were obtained. This latter group consisted (a) of employees doing light and moderate work, and (b) of employees doing hard work of such a strenuous character that even under low-temperature conditions their bodies were covered with visible perspiration.

The temperature of the forehead, the two cheeks, the back of the neck, and the chest (at a point on the sternum just above the xiphoid cartilage) were recorded. The reason for selecting these particular sites is that they are directly exposed to the environmental conditions (with the exception of the chest, which was covered) and are easily accessible, a point to be considered when studying persons whose work can not be interrupted for any length of time. The five readings on a single person could be made in less than a minute's time, and may be regarded as being practically simultaneous.

All observations were made during the months of November and December, and are therefore not given as representative of the conditions throughout the year. However, they were taken at a time of the year when respiratory conditions are prevalent and when the outdoor temperature contrasted sharply with the skin temperature produced by the radiant energy.

Before and after each set of skin temperature and radiation readings, dry and wet bulb temperature observations of the air were made with a sling psychrometer, which at all times was shielded from any source of radiant energy, and the air velocity was computed from observations of the cooling power of the air, made with Hill's kata-thermometer (4). Knowing the dry and wet bulb temperatures and the rate

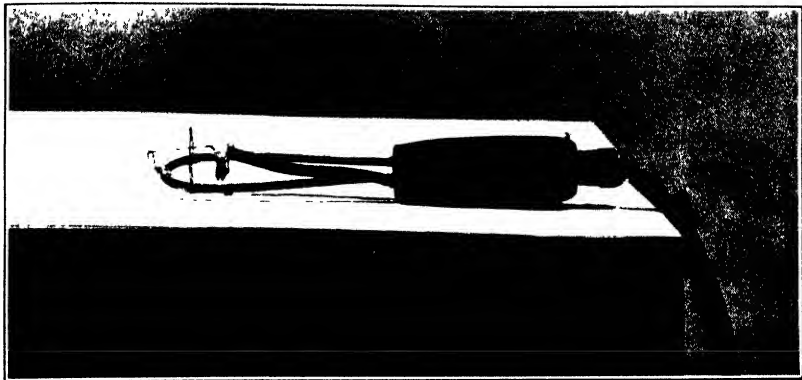


FIGURE 1 -THERMO-ELECTRIC JUNCTION USED IN MEASURING SKIN TEMPERATURES NOTE THE FOUR ARMS OF SPRING BRASS WIRE WHICH SUPPORT THE SILK THREADS HOLDING THE THERMOCOUPLE IN POSITION. NOTE ALSO THE WOODEN HANDLE WITH SOCKET, PLUG, AND CABLE

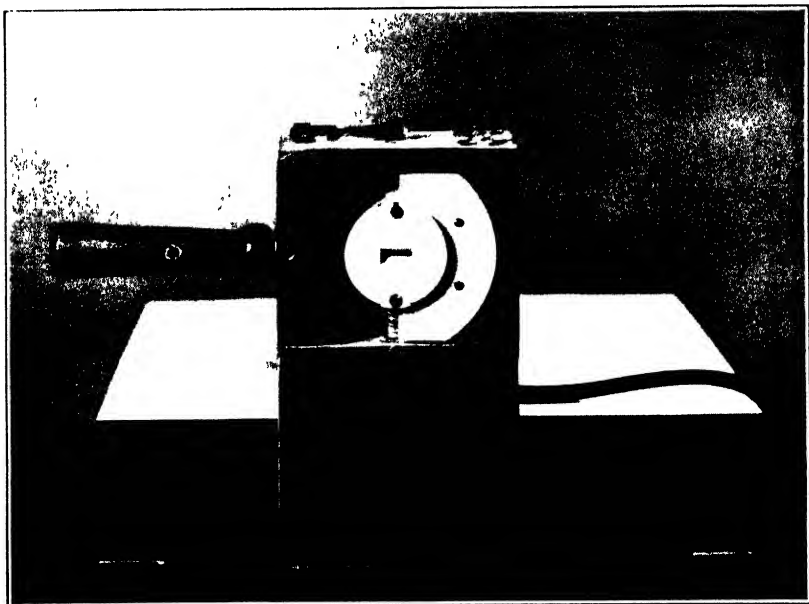


FIGURE 2 -THERMOPILE USED IN MEASURING THE RADIATION FROM FURNACES ETC NOTE THE ALUMINUM SHUTTER, THE WOODEN HANDLE, THE CABLE AND THE TWO SPIRIT LEVELS ON THE TOP OF THE WOODEN HOUSING

of air motion, it was possible to compute effective temperatures for the individual workers (3). However, in this study the effective temperature is of no great value in the case of workers exposed to radiant energy, since it is not possible to express in its terms the atmospheric conditions for workers so exposed.

Instruments used to measure skin temperature and radiation.—A thermoelement made of No. 32 copper and constantan wires, 0.00795 inches in diameter, was used to measure the temperature of the skin. The form of the junction was that described by L. B. Aldrich in "A study of body radiation" (6) and shown by him in Figure 2 of his paper. In this device the junction is held in position by silk threads which are supported by four arms of spring brass wire attached to a rigid frame of brass. The frame terminates in a wooden handle. No cover was used over the junction. The instrument, as it was used, is shown in Figure 1.

An Eppley bismuth-silver thermopile was used to measure the radiant energy from the furnaces, etc. This thermopile is of the form designed by W. W. Coblentz, and shown in Figure 3 of his paper (7). The thermopile as originally constructed had 12 junctions, but only 10 were used. The thermopile was mounted in a brass case having an adjustable slit in front of the central line of junctions. The width of the slit was set at 2 millimeters. At this width the effect of air currents upon the thermopile was negligible. As used to measure the radiation from furnaces, etc., the brass case was housed in a square wooden box with a wooden handle, as shown in Figure 2. An aluminum shutter was attached to the front of the box to cut off the radiant energy when desired, and two small spirit levels were placed on the top of the box at right angles to each other so that the plane of the slit could be maintained in a vertical position while a measurement of the radiation was being made.

A Leeds and Northrup portable galvanometer, with telescope and scale, having a resistance of 25 ohms and a sensitivity of 0.2 millimeter per microvolt, was used to measure the current either from the thermoelement or from the thermopile. A short-circuiting switch was connected to the terminals of the galvanometer so that its zero reading could be readily obtained. In order to obtain a convenient deflection on the galvanometer a variable resistance of from 0 to 10,000 ohms was connected in series with it. For the measurements of skin temperature the constant temperature junction of copper and constantan, sealed in a glass tube, was immersed in water in a thermos bottle, the temperature of the water being determined by a thermometer immersed in it. The galvanometer, variable resistance, thermos bottle, and a double-throw switch were mounted on a board which could be placed on a chair, stool, or table, near the point where the measurements were to be made.

By means of interchangeable plugs and sockets, the double-throw switch, and a cable 18 feet long containing 3 wires, 1 of constantan and 2 of copper, insulated from each other, the galvanometer could be connected at will either with the thermoelement or with the thermopile. When the cable was connected with the thermoelement, the thermoelectric current passed through the thermoelement, the constant temperature junction, the resistance box, and the galvanometer, the two thermocouples being connected to each other, on one side by by constantan wires, and on the other side by copper wires. When connected with the radiation thermopile, the skin temperature thermoelement was cut out of the circuit and the current passed through the thermopile, the resistance box, and the galvanometer; the wires connecting the thermopile to the resistance box and the galvanometer

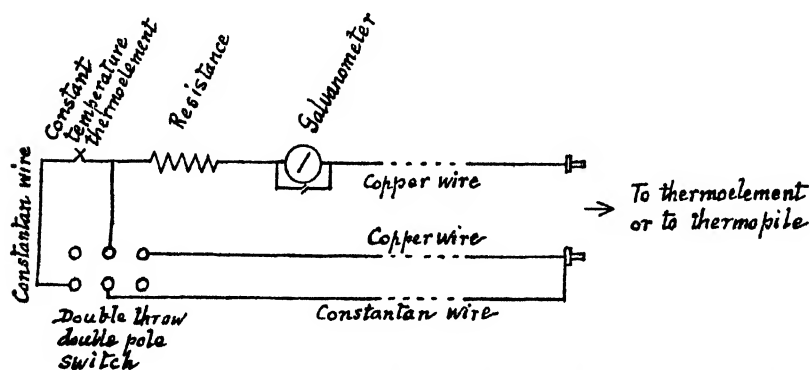


FIGURE 3.—Diagram of the electric circuits used with the skin temperature thermoelement and the radiation thermopile

were of copper on both sides. A diagram of the connection is shown in Figure 3.

When using the thermoelement the resistance was set at 100 ohms. This gave about 2° centigrade to one division on the galvanometer scale. Since each division on the galvanometer scale was subdivided into 10 parts, it was possible to determine the skin temperature to a tenth of a degree. The thermoelement was calibrated by immersing it in kerosene at varying temperatures, and the formula used to calculate the skin temperature was

$$t_s = t_c + 2.01 G + 0.7$$

where

t_s = skin temperature.

t_c = temperature of the constant temperature junction.

G = galvanometer reading.

When using the thermopile the resistance was set at various values from 1,000 to 9,000 according to the intensity of the radiation to be

measured. Calibration by comparison with a standard lamp supplied to the Public Health Service by the Bureau of Standards, and with a 200-watt Mazda C lamp standardized by the Smithsonian Institution gave values for the radiation, for different values of the resistance in the resistance box, for a deflection of one division on the scale of the galvanometer, shown in Table 1.

TABLE 1.—Gram calories per square centimeter per minute for one division on the galvanometer scale for different values of resistance in the resistance box

Resistance in box, in ohms	Gram calories per square centimeter per minute per galvanometer scale division	Resistance in box, in ohms	Gram calories per square centimeter per minute per galvanometer scale division
0.....	0.00386	5,000.....	0.555
10.....	.00496	6,000.....	.665
100.....	.0149	7,000.....	.775
1,000.....	.114	8,000.....	.885
2,000.....	.224	9,000.....	.995
3,000.....	.334	10,000.....	1.105
4,000.....	.445		

Since the calibration constant of the thermopile was known to 1 per cent and the galvanometer scale could be read to two-tenths of one of its smallest divisions, the values obtained for the incident radiation are probably accurate to about 1 per cent.

On account of the small heat capacity of the thermoelement, its response was very rapid, the galvanometer reading assuming a steady value within a few seconds. The response of the thermopile to radiation was immediate.

General picture of the results.—Rather than to give an exhaustive analysis of the skin temperature readings obtained at this time, the data are presented more or less as samples selected to bring out the important relations.

The marked rise in skin temperatures, especially those of the forehead and cheeks, for workers exposed to radiant energy is shown in Table 2, which gives the readings for two men working in the blast-furnace cast house. A graph of these skin temperatures is shown in Figure 4. While casting was in progress the radiant energy for both men, averaged for six readings, was 2.57 gram calories per square centimeter per minute, an intensity severe enough to cause profuse sweating in a few minutes even under intermittent exposure and under the low existing temperature conditions. An idea of the meaning of the magnitude of 2.57 gram calories per square centimeter per minute may be obtained when this value is compared to the strength of the radiation from the sun, which, outside the earth's atmosphere, is equal to 1.93 gram calories per square centimeter per minute. The

atmospheric conditions, apart from the radiant energy, were very cold, the dry bulb reading being 33° F., the relative humidity 51 per cent, and the air velocity 113 feet per minute. Skin temperature

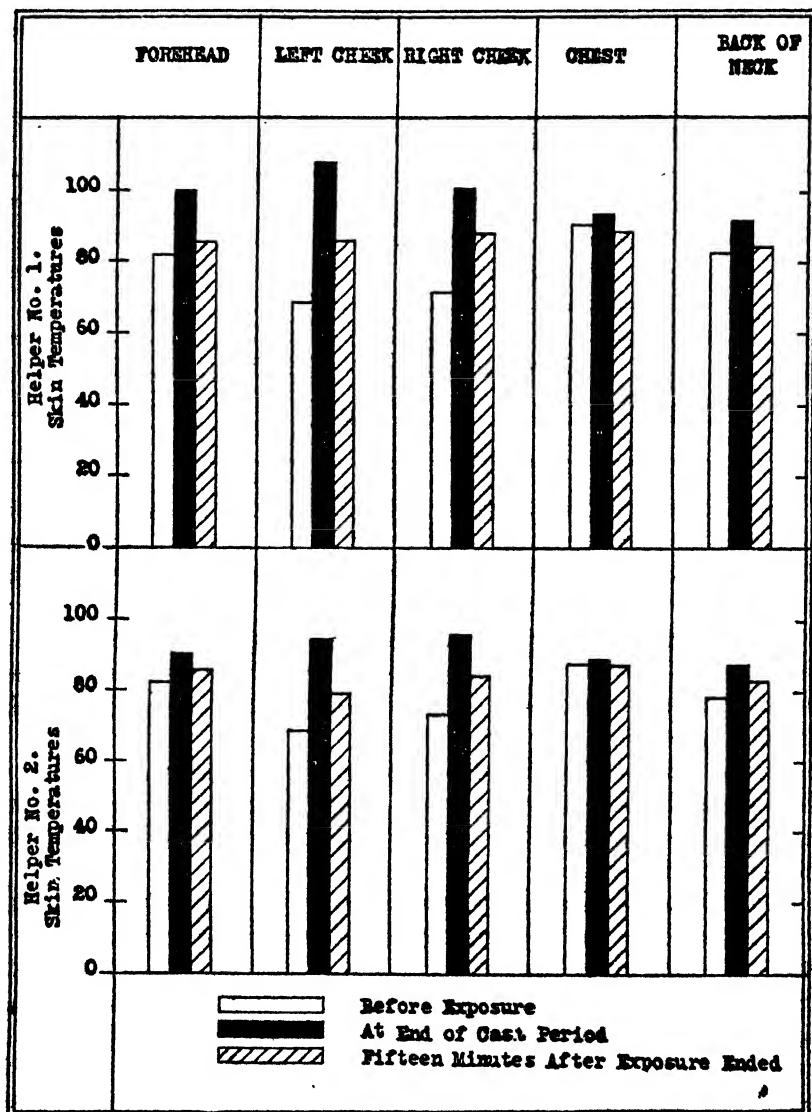


FIGURE 4.—Skin temperatures in degrees Fahrenheit of two workers in blast furnace cast house before and after exposure to radiant energy from molten iron during casting

readings were taken prior to casting, at the end of the cast period, when cooling had already commenced, and 15 minutes later. The table gives all of these readings, and also the rise of skin temperature due to the effect of casting.

TABLE 2.—*Skin temperatures in degrees Fahrenheit of two workers in blast-furnace cast house before and after exposure to radiant energy of 2.57 gram calories per square centimeter per minute, from molten iron during casting—Exposure intermittent and of 20 minutes' duration*

Worker	Forehead	Left cheek	Right cheek	Chest	Back of neck
Temperatures before casting					
First helper.....	81.5	68.2	70.7	90.7	83.3
Second helper.....	81.9	68.5	72.1	86.7	78.3
Temperatures immediately after casting					
First helper.....	99.7	107.6	100.0	92.8	92.1
Second helper.....	89.6	93.6	94.3	88.2	87.8
Temperatures 15 minutes later					
First helper.....	85.1	85.5	87.4	88.7	85.1
Second helper.....	85.6	78.6	83.3	86.7	82.9
Rise in temperature					
First helper.....	18.2	39.4	29.3	2.1	8.8
Second helper.....	7.7	25.1	22.2	1.5	9.5
Average rise in temperature					
	12.9	32.3	25.7	1.8	9.1

One would expect that individual workers would react quite differently to radiant energy, because of variation in the amount of work done, the kind of clothing, position with reference to the source of radiant energy, location while cooling off, as well as individual physiological idiosyncrasies. Furthermore, there would be different results in the case of other processes, such as those carried out at the coke ovens, or the open-hearth furnaces. Therefore, no attempt has been made to indicate the precise degree of change in skin temperatures as a result of exposure to radiant energy. The figures given in this table and graph are not meant to be typical, but simply are presented as an indication that marked changes do occur.

It will be seen that the cheeks show the greatest rise in temperature, but there is also a definitely marked increase for the forehead and even for the back of the neck. The only reading not showing a consistent rise was that of the chest. The chest, however, was covered when the readings were made, and was thus protected from the radiant energy. There was a fall in skin temperature during the 15-minute period following the casting, although in general the temperatures had not returned to the old levels when these final readings were made.

Data have not been given for open-hearth furnace workers, but it may be stated that they were exposed to intense radiation, on an average of 6.47 gram calories per square centimeter per minute, for brief and intermittent intervals, and high skin temperatures were encountered.

The highest skin temperatures recorded in the course of the study were for a heater at the coke ovens, exposed to about 0.30 gram calories per square centimeter per minute of radiant energy at intermittent periods. The readings for this person (see Table 3) were: Forehead, 105.8°; left cheek, 110.8°; right cheek, 106.2°; chest, 102.4°, and back of neck, 103.5°. This man was working in a very hot atmosphere, dry bulb 94° (shielded), relative humidity 24 per cent, and air velocity 250 feet per minute, which without a source of radiant energy would have produced an effective temperature of 79°. It will be noted that the environmental conditions were very different from those for the blast-furnace cast house. Other skin temperature readings of 100° or more were obtained for workers exposed to radiant energy, although for workers not exposed to radiant energy no readings as high as 100° were found.

One of the things shown by these results is the great difference in the skin temperature of different parts of the body for the same individual, although these temperatures were taken almost simultaneously. Whether this fact has a bearing on the high incidence of pneumonia among these workers remains to be determined by further analysis; but it seems well to indicate the extent of these differences in the present paper. For this purpose cases have been chosen where it was known that the worker was facing a source of radiant energy and where the readings were made immediately after the source had been removed. The skin temperatures of five individuals are shown in Table 3, together with the maximum temperature difference and the difference between the temperature of the forehead and the back of the neck. The atmospheric conditions corresponding to these temperatures are also given. The three sets of readings given for the coke oven heater and the two sets of readings for the coke oven luterman are in each case readings for the same individual. The time of exposure to the source of radiant energy was brief in all cases, being intermittent and lasting only two or three minutes at any one time.

TABLE 3.—*Skin temperatures at various sites for certain workers facing sources of radiant energy, together with the corresponding atmospheric conditions. Radiation given in gram calories per square centimeter per minute; temperature, in degrees Fahrenheit; and velocity of the air in feet per minute.*

Occupation	Skin temperatures							Atmospheric conditions				
	Fore-head	Left cheek	Right cheek	Chest	Back of neck	Differences		Radiation	Temperature of the air, °F.	Relative humidity, per cent	Velocity of the air, feet per minute	Effective temperature without radiation ¹
						Maximum	Fore-head and back of neck					
Coke oven heater.....	105.8	110.8	108.2	102.4	103.5	8.4	2.3	0.30	94	24	250	79
	84.8	75.5	79.2	86.6	78.5	11.1	8.3	0.31	56	20	98	51
	85.4	84.0	86.0	91.0	75.0	16.0	10.4	0.30	56	20	48	52
Coke oven luterman..	91.9	103.6	86.4	100.4	84.4	19.2	7.5	0.34	51	62	56	48
	91.9	94.3	91.9	96.1	82.3	13.8	9.0	0.34	51	62	56	48
Blast-furnace cast house workers:												
Keeper.....	93.6	92.8	94.6	93.2	90.3	4.3	3.3	2.57	33	51	113	27
First helper.....	90.7	107.6	100.0	92.8	92.1	15.5	7.6	2.57	33	51	113	27
Second helper.....	89.6	93.6	94.3	88.2	87.8	6.5	1.8	2.57	33	51	113	27

¹ Effective temperature which would have been produced if no source of radiant energy had been present.

As would be expected, there is no great consistency in the differences between the skin temperatures of different parts of the body; they evidently depend on the mode and duration of exposure of the worker to radiant energy, on other atmospheric conditions such as the temperature, relative humidity, and velocity of the air, and on factors peculiar to the individual. It will be noted that there was as much as 10.4° difference between the temperature of the forehead and that of the back of the neck for one worker, and a difference of 19.2° between the temperature of the left cheek and the back of the neck for another worker. These workers faced the source of radiant energy, their backs being exposed to the wind.

One of the striking points brought out by the data collected in this study is the fact that there occurred high skin temperatures for the workers, even when the atmospheric conditions were very cold. This is shown by the data given in Table 3 for workers in the blast-furnace cast house, where skin temperatures as high as 107.6° were observed when the temperature of the air was as low as 33°. The radiation in this case had a high value, 2.57 gram calories per square centimeter per minute. On the other hand very high skin temperatures (108.5° for the cheeks) were obtained with a radiation of only 0.30 gram calories. In this case, however, the temperature of the air was very high, being 94°, and the atmospheric conditions without the radiation would have produced an effective temperature of 79°. The work of McConnell and Yagloglou (5b) has shown that for an effective temperature of this amount the skin temperature was 100°, even when no source of radiant energy was present. It is to be expected that the rise in skin temperature produced by the radiant

energy will depend not only on the intensity of the radiation but also upon the temperature, relative humidity, and velocity of the surrounding air.

Although this paper deals primarily with persons exposed to radiant energy, using the other workers as a "control" group, the writers feel that there is sufficient general interest in the subject of skin temperatures to justify a comparison of skin temperatures for different atmospheric conditions for steel workers who were not exposed to radiant energy. The data are very limited in extent; also, some of the employees were doing hard work, others, moderate work, and in a few cases readings were taken on persons before they started to work. Generally speaking, the group doing light or moderate work were exposed to much higher temperatures than those doing hard work, which makes any comparison between these two groups impossible. It is possible, however, to show that workers in *both* of these groups showed *higher skin temperatures* when in the *hotter* atmosphere. These results are in line with those obtained by the Research Laboratory of the American Society of Heating and Ventilating Engineers (3).

It would be desirable to present curves depicting the rise in skin temperature with a rise in atmospheric temperature, measured, perhaps, by the effective temperature scale. The data, however, seem insufficient to do this, because in only a few cases were there different effective temperature conditions, and in these cases the men were not engaged in the same sort of work. All that has been attempted, therefore, is to contrast the skin temperatures observed under two atmospheric conditions, first, for a group of workers doing hard work; and then for a group doing light or moderate work. This has been done in Table 4. As in previous cases, the material is presented as an indication of the relationship existing, rather than as a complete picture of it.

TABLE 4.—Average skin temperatures and atmospheric conditions for workers not exposed to radiant energy. Temperatures measured in degrees Fahrenheit and velocity of the air in feet per minute

Work group	Occupation	Skin temperatures						Atmospheric conditions			
		Fore-head	Left cheek	Right cheek	Chest	Back of neck	Number of observations	Temperature of the air, ° F.	Relative humidity, per cent	Velocity of the air, feet per minute	Effective temperature
Hard work...	Workers at ammonium sulphate saturators...	89.7	91.3	89.6	93.8	86.8	4	59	67	166	53
	Outdoor laborers...	83.0	74.5	78.7	93.9	82.4	2	45	51	90	41
	Difference...	6.7	16.8	10.9	— .1	4.4	—	—	—	—	—
Moderate work.	Office...	97.3	97.0	96.5	97.5	95.9	3	76	28	10	69
	Engine house...	90.3	86.4	85.8	92.9	86.9	8	58	41	62	54
	Difference...	7.0	10.6	10.7	4.6	9.0	—	—	—	—	—

It will be noted that in the hard-work group the marked difference between the atmospheric conditions for the workers at the ammonium sulphate saturators and for the outdoor laborers is reflected in the values for the skin temperatures, the skin temperatures being higher for the higher effective temperatures. The left cheek shows an average increase of 16.8° , the right cheek 10.9° , the forehead 6.7° , and the back of the neck 4.4° , when the effective temperature is increased from 41° to 53° .

In the moderate-work group similar increases in the skin temperatures are shown when the effective temperature is increased from 54° to 69° . The atmospheric conditions in this latter group, however, are not on the same levels as those that prevailed for the employees doing hard work. In fact, the temperature in the engine house, in this case the lower temperature, is very nearly the same as that at the ammonium sulphate saturators, which for the hard-work group had the higher temperature. This is the reason why no effort has been made to compare directly the skin temperatures of the workers doing hard work with the skin temperatures of those doing moderate work.

The results, as far as they go, are consistent with those reported by McConnell and Yagloglou (5b).

The averages of all readings (31 sets of observations) for all workers not exposed to radiant energy gave the following values for skin temperatures: Forehead, 90.4° ; left cheek, 88.3° ; right cheek, 87.9° ; chest, 91.8° ; back of neck, 87.6° . It will be noted that the frontal temperature is higher than the dorsal. This fact has been observed by others (5).

In connection with the data already presented, it may be of interest to give the skin temperature readings made on two other workers. These men followed the occupation of chipper, an unskilled operation of removing surface defects from billets and blooms of steel by means of a pneumatic chisel. This work is carried on in an open, shed-like building, called "chipper yard," through which a considerable draft of air is always blowing. The air is very damp, owing to the saturated condition of the compressed air, which escapes from the port side of the pneumatic hammer. At the time when the observations were made in this "chipper yard," the dry-bulb temperature was 34° F., the wet bulb 31° , and the air velocity 900 feet per minute. The effective temperature for these conditions has never been determined, nor is it possible to obtain a value from the effective temperature chart by extrapolation; but, it is quite low, perhaps in the neighborhood of 20° . The men were heavily clothed, especially about the chest, wore hats and scarfs or kerchiefs about their necks. The average readings were as follows: Forehead, 61.2° ; cheeks, 52.5° ; chest, 76.8° ; and back of neck, 66.4° . It will be noted that the cheeks,

which were unprotected by clothing, showed the lowest temperature, and the chest, which was well covered, the highest.

SUMMARY

The main purpose of this paper has been to describe the instruments employed in the field to determine radiant energy and skin temperature. Incidentally, however, a general picture of the results obtained, has been given as an indication or sample of the relationship between skin temperature, radiant energy, and the atmospheric conditions among steel workers. The final comparisons have been left to a later monograph, which will show what correlations may appear between conditions found and the sickness rates, primarily pneumonia. The following points have come out rather clearly in this preliminary analysis:

1. Intense sources of radiant energy had a pronounced effect on the skin temperatures of workers exposed to them; the forehead and cheeks showed the greatest increase.

2. Great differences in the skin temperatures of different parts of the body, for a single individual, were found in workers exposed to radiant energy.

3. Even under relatively cold atmospheric conditions, not far above the freezing point, high skin temperatures were encountered in workers exposed to radiant energy.

4. For workers not exposed to radiant energy there was a definite relation between atmospheric conditions and skin temperatures, both for arduous and for moderate work; the skin temperatures increasing with increase of effective temperature.

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STUDIES ON ROCKY MOUNTAIN SPOTTED FEVER

For convenience and ready reference, the results of experimental studies on Rocky Mountain spotted fever conducted by Public Health Service investigators over a period of six years, 1922-1928, have been collected and bound in one volume. This has recently come from the press as Hygienic Laboratory Bulletin No. 154.

This bulletin comprises seven papers previously published in the PUBLIC HEALTH REPORTS and four additional papers which have not heretofore appeared.

In their earlier work the authors have shown that the virus of Rocky Mountain spotted fever becomes noninfectious in hibernating ticks and can subsequently be revived to a highly infectious stage by subjecting the ticks to a warm temperature (37° C.), or preferably by permitting them to ingest mammalian blood. After such feeding the virus content of the infected ticks increases enormously, and there is usually, but not invariably, an increase in the number of demonstrable rickettsiae in the tick tissues. From ticks at this stage the authors later prepared a preventive vaccine (having failed to grow the causative organism on artificial media) which has protected experimental animals from multiple infectious doses of the virus and has been used experimentally over a period of four years in the vaccination of people whose occupation exposes them to tick bites. The results so far indicate that the vaccine has a definite field of usefulness in the prevention of Rocky Mountain spotted fever.

This bulletin is of a technical nature and is not suitable for general distribution. Public health workers, however, and persons par-

ticularly interested in this general field of research may secure copies without charge by addressing the Surgeon General, United States Public Health Service, Washington, D. C.

MORTALITY IN CERTAIN STATES DURING 1929, WITH COMPARATIVE FIGURES FOR RECENT YEARS¹

For about two years the United States Public Health Service has secured from State health departments current mortality data and has each month published death rates from certain important causes from as many States as could furnish the information to the service. The data so collected for monthly publication are, of course, available for an annual summary also, and the tables here presented have been compiled to give a preliminary summary of mortality during 1929.

The rates are computed from current and generally preliminary reports furnished by State departments of health. Because of (a) some lack of uniformity in the method of classifying deaths according to cause, (b) some delayed death certificates, and (c) various other reasons, these preliminary rates can not be expected to agree in all instances with final rates published by the Bureau of the Census; the final figures are based on a complete review and retabulation of the individual death certificates from each state. The preliminary rates given in the following tables are intended to serve as a current index of mortality until final figures are issued by the Bureau of the Census. Because 1929 is so far from the 1920 census and so near the taking of the new census, the Bureau of the Census has not made population estimates for that year. For this reason, the rates for 1929 in these tables are based on the population as estimated by the Bureau of the Census for July 1, 1928.

For purposes of comparison, the mortality records for a few preceding years are given. These comparative rates for preceding years are taken from the same source as are the current reports. Although final figures are often available for these earlier years, the preliminary figures are retained as being more nearly comparable with current preliminary rates.

In Table 1 the death rates from all causes and from certain specific causes for groups of States have been brought together. The number of States included varies with the cause; but for a given cause the same States are included for every one of the years from 1923 to 1929. Tables 2, 3, and 4 show the States that are included in the group whose records are summarized in Table 1 for each cause of death, and also the death rates from that cause in each of the States for each year. The death rates for the groups are repeated in those tables, but it

¹ From the Office of Statistical Investigations, U. S. Public Health Service.

seemed worth while to bring together in Table 1 the rates for the different causes and years in as large a group of States as possible. In every case all States for which data were available for the whole period 1923-1929 were used in making the summary. In addition, the detailed tables (Tables 2, 3, and 4) show rates for 1929 and such other years as could be secured for States for which data were not available for the whole period.

The rates for the majority of the diseases included in Table 1 are based, on reports from 13 States, with an aggregate population of more than 41,000,000, or about one-third of the total population of the United States. Other causes in this table are based on fewer States, but the smallest population considered is more than 19,000,000. While the rates in these States may not be the same as those for the total registration area, it is highly probable that the trend in these rates will be quite comparable with the trend in the rates in the total registration area.

The death rate per 1,000 from all causes in the group of 12 States was 12.4 in 1929, as against 12.3 in 1928. Such a small difference may not appear to be significant, but an examination of the rates for individual States suggests that the rate in 1929 was slightly more than that in 1928. Of the 18 States with data for both years, 11 had a slightly higher rate in 1929 than in 1928. The rate for 1927 was less than any of the rates from 1923 to 1926, inclusive. No doubt the slightly higher rates in 1929 and 1928 were due to the influenza epidemic, which had its peak at a very early date in January of 1929, so that the excess mortality was almost equally divided between the two calendar years. This influenza epidemic was a minor one as compared with the 1918 pandemic, but it was the most severe epidemic that has occurred since 1920.

In the 10 States for which infant mortality figures were available, the rate in 1929 was slightly less than in 1928. The decrease from the 1928 rate, although small, was participated in by 8 of the 14 States with data available for both years, and in 2 other States the rates in the two years were the same. Inasmuch as the death rate from malformations and diseases of early infancy changes very little from year to year, a line has been inserted in Table 1 to show the infant mortality from all causes except malformations and early infancy. Since 1923 the infant mortality rate from causes other than malformations and early infancy has decreased 19 per cent as against a decrease of 16 per cent in the total infant mortality rate. Nearly one-half of the present infant mortality is due to malformations and diseases of early infancy and this group of causes has decreased very little.

Typhoid fever continued during 1929 its almost uninterrupted decline. With the exception of 1925, each year has shown a decrease over the preceding year. Reference to Table 4 indicates that of the 21 States with data available for both 1928 and 1929, 13 participated in the decrease and another State was the same for the two years. The rates for the different States vary a great deal and those with a decline included a number of States with relatively high rates. A few of the States that increased have exceptionally low rates and in some cases the increase may be a matter of chance rather than an indication of a real increase in typhoid fever.

It is a well-known fact that the diseases of children such as measles, chickenpox, scarlet fever, and diphtheria tend to occur in cycles and, therefore, the death rate for any one year is a poor indicator of the average mortality from these diseases. The measles death rate for 1929 was less than in any of the seven years shown on this table. The death rate from whooping cough was slightly more than in 1928 and the same as in 1927, but each of these three rates was less than in any of the four preceding years. The same can be said of the death rate from scarlet fever, the rate for 1929 being slightly more than that for 1928, but each rate during the last three years being less than any rate from 1923 to 1926, inclusive. Diphtheria continued during 1929 its almost uninterrupted decline throughout these seven years. The rate for 1928 was the same as that for 1927, but each of the other years has shown a decline over the preceding year. Of the 21 States with data available for both 1928 and 1929, 15 showed a decrease in the diphtheria rate for 1929 as compared with that for 1928.

The death rate for poliomyelitis in 1929 was the lowest since 1923. Of 18 States with data for both of the last two years, 12 States showed a decrease in 1929 as compared with 1928, and 2 more had the same rate for the two years.

Meningitis, on the other hand, showed the highest rate that has occurred in any of the seven years; in fact, the rate was more than twice as high as that for 1928 and more than three times as high as in any of the other years. In every one of the 16 States for which data were available in 1928 and 1929 the rate was higher in the latter year. States with unusually high rates were Michigan, Arizona, and California. The rate was also very high in Hawaii. The number of cases of meningitis reported to State departments of health indicates that the high level of 1929 has continued into 1930.

The death rate from tuberculosis continued its decline from 99.1 in 1923 to 79.5 in 1929, every year in that period showing a decline as compared with the preceding year. Of the 21 States with data for both 1928 and 1929, 16 had smaller rates in the latter year.

Cancer, on the other hand, continued an uninterrupted increase from 95.1 in 1923 to 105.8 in 1929, each year throughout this period

showing an increase over the preceding year. Of the 19 States with data for the last two years, 13 showed an increase in 1929 over 1928, but there were 6 States that showed a decrease.

The rate for diseases of the heart, likewise, continued its increasing trend, 13 of the 16 States with data for the last two years showing an increase in 1929 over 1928 and only 2 showing a decrease, the other State remaining the same for the two years. The death rate from heart diseases in each year from 1923 to 1929, except 1927, has shown an increase over the preceding year.

The rate for nephritis was slightly lower in 1929 than in 1928, but was higher than in any of the other years except 1926. However, the increase from 1923 to 1929 has been neither large nor regular. Of the 15 States with data for the last two years, 11 showed a decrease in 1929 as compared with 1928.

The death rate from cerebral hemorrhage was slightly less in 1929 than in 1928 and less than in any of the other preceding years except 1927. Of the 12 States with data for both of the last two years, 7 showed a decrease and 5 an increase.

The death rate from diabetes was greater in 1929 than in any of the 7 years included in the table. However, of the 14 States with data for both of the last two years, only 8 showed an increase and 6 showed a decrease in 1929 as compared with 1928. The change since 1923 has been neither large nor regular, but the rates for 1928 and 1929 are both larger than those for any of the preceding years.

Diarrhea and enteritis under 2 years of age continued its almost uninterrupted decline, the rate for 1929 being hardly more than one-half the rate for 1923. In every year included in the table, except 1925, the rate is less than in the preceding year, and in most instances materially less. Of the 17 States with data for both 1928 and 1929, 10 showed a decrease in 1929 as compared with 1928.

The influenza death rate was somewhat higher in 1929 than in 1928, and in both of these years it was higher than in any preceding year included in the table. As already mentioned, an influenza epidemic which occurred at the very end of 1928 and the beginning of 1929 was almost equally divided between the two calendar years. The pneumonia death rate for 1929 was slightly higher than that for 1928, but was less than the rates for the years from 1923 to 1926, inclusive.

TABLE 1.—Summary of mortality from certain causes in a group of States, 1923-1929

Diseases (numbers in parentheses are from the International List of the Causes of Death, third revision, Paris, 1920)	1929	1928	1927	1926	1925	1924	1923	Number of States included ¹	Estimated population as of July 1, 1928
Rate per 1,000 population									
All causes (1-205).....	12.4	12.3	11.8	12.7	12.6	12.5	13.0	12	38,556,000
Deaths under 1 year per 1,000 live births									
Total infant mortality.....	70	71	68	76	78	76	83	10	32,013,000
All except malformations and early infancy.....	38	38	35	42	43	43	47	8	27,170,000
Rate per 100,000 population									
Typhoid fever (1).....	2.8	3.1	3.7	4.7	6.4	5.3	5.4	13	41,509,000
Measles (7).....	2.5	3.9	3.3	7.7	2.7	6.3	11.1	13	41,509,000
Scarlet fever (8).....	2.0	1.8	2.0	2.3	2.7	3.4	3.9	13	41,509,000
Whooping cough (9).....	5.3	5.2	5.3	7.9	6.9	7.2	9.3	13	41,509,000
Diphtheria (10).....	5.7	6.7	6.7	6.8	7.8	9.7	12.5	13	41,509,000
Influenza (11).....	46.2	38.2	19.6	35.1	26.0	17.6	36.5	11	37,943,000
Acute anterior poliomyelitis (22).....	.7	1.2	1.8	.8	1.0	.9	.7	9	30,546,000
Meningococcus meningitis (24).....	3.6	1.4	1.0	1.0	.8	.7	1.0	7	23,001,000
Tuberculosis (all forms) (31-37).....	70.5	81.6	83.3	90.3	92.6	95.4	99.1	13	41,509,000
Cancer (43-49).....	103.8	103.6	101.7	101.0	100.0	97.5	95.1	13	41,509,000
Diabetes mellitus (57).....	21.2	20.7	15.7	15.9	17.9	17.4	18.1	5	19,048,000
Cerebral hemorrhage, apoplexy (74).....	94.5	94.9	90.9	96.4	99.4	101.3	97.5	7	15,936,000
Heart diseases (87-90).....	233.5	227.3	209.5	214.5	202.7	180.9	185.5	8	23,790,000
Pneumonia (all forms) (100, 101).....	96.9	96.5	76.9	99.7	98.5	101.2	112.2	12	39,893,000
Diarrhea and enteritis (under 2 years) (113).....	18.2	18.9	20.6	25.5	33.5	30.5	35.0	11	37,171,000
Nephritis (all forms) (128, 129).....	105.2	106.1	102.5	109.4	102.7	99.9	101.0	10	34,167,000

¹ See Tables 2, 3, and 4 for names of States included. The District of Columbia is counted as a State in this column.

TABLE 2.—Mortality from all causes in certain States and in a group of insured wage earners, 1923-1929

State	Death rate per 1,000 population (all causes, 1-205)						
	1920	1928	1927	1926	1925	1924	1923
States with complete data.							
Total (11 States and District of Columbia).....	12.4	12.3	11.8	12.7	12.6	12.5	13.0
Alabama (total).....	12.5	12.3	10.6	11.7	11.6	11.7	11.1
White.....	10.0	9.6	8.6	9.6			
Colored.....	17.3	16.8	14.1	15.9			
Arizona.....	14.2	13.5	12.6	12.7	13.3	13.4	12.7
California.....	14.3	14.5	14.5	14.2	14.1	14.5	14.3
Connecticut.....	10.8	10.7	10.6	11.8	11.6	11.3	12.0
District of Columbia.....	13.5	13.1	12.9	14.0	13.6	13.1	14.7
Indiana.....	12.3	12.2	11.5	13.2	12.7	12.3	13.2
Louisiana.....	12.5	12.8	12.2	12.6	13.2	13.3	12.0
Maryland.....	13.6	13.4	13.2	14.7	14.1	13.9	14.9
Minnesota.....	9.3	9.4	9.2	9.7	9.7	9.5	10.0
New Jersey.....	11.9	11.6	11.3	12.3	11.8	11.7	12.3
New York (exclusive of New York City).....	13.4	13.1	12.8	14.0	13.3	13.3	14.8
Pennsylvania.....	11.7	12.0	11.4	12.5	12.2	12.3	13.3
Other States:							
Georgia.....	10.7						
Hawaii.....	12.6	11.8					
Iowa.....	10.5	10.5					
Kansas.....	10.6	11.4	10.2	(¹)	10.3		
Michigan.....	12.2	(¹)	11.5	12.7	11.8	12.2	12.8
North Carolina.....	12.6	12.2					
South Dakota.....	8.4	8.7					
Tennessee.....	12.5	12.4	11.5				
Virginia.....	11.2	(¹)	11.3	12.2	11.8	11.9	12.7
Wisconsin.....	10.5	(¹)	10.0	10.3	10.1	9.9	10.5
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over.....	8.7	8.7	8.4	8.9	8.5	8.5	9.0

¹ Not available.

TABLE 3.—*Infant mortality in certain States, 1923-1929*

State	Deaths under 1 year per 1,000 live births						
	1929	1928	1927	1926	1925	1924	1923
	Total infant mortality						
States with complete data:							
Total (9 States and District of Columbia).....	70	71	68	76	78	76	83
Alabama (total).....	73	74	65	68	73	79	77
White.....	64	63	56	62	-----	-----	-----
Colored.....	91	98	84	89	-----	-----	-----
Arizona.....	128	144	127	116	133	140	128
California.....	63	62	63	63	69	67	72
Connecticut.....	68	62	59	72	73	69	76
District of Columbia.....	69	65	66	85	87	76	91
Indiana.....	66	64	59	72	68	66	71
Louisiana.....	76	81	77	74	89	94	82
Maryland.....	79	79	81	87	90	87	94
New York (exclusive of New York City).....	63	65	63	74	71	71	79
Pennsylvania.....	71	72	70	82	82	78	88
Other States:							
Hawaii.....	101	-----	-----	-----	-----	-----	-----
Iowa.....	52	54	-----	-----	-----	-----	-----
Kansas.....	57	59	-----	-----	-----	-----	-----
Michigan.....	67	-----	-----	-----	-----	-----	-----
Minnesota.....	48	-----	-----	-----	-----	-----	-----
New Jersey.....	61	-----	-----	-----	-----	-----	-----
South Dakota.....	56	59	-----	-----	-----	-----	-----
Tennessee.....	79	-----	-----	-----	-----	-----	-----
Virginia.....	74	-----	-----	-----	-----	-----	-----
Wisconsin.....	61	61	-----	-----	-----	-----	-----
All except malformations and early infancy							
States with complete data:							
Total (7 States and District of Columbia).....	38	38	35	42	43	43	47
Alabama.....	44	46	37	42	42	44	38
Arizona.....	93	105	94	81	97	102	94
California.....	32	33	31	31	35	35	39
District of Columbia.....	34	28	27	42	43	35	45
Louisiana.....	48	50	46	45	54	55	51
Maryland.....	46	42	43	49	48	46	54
New York (exclusive of New York City).....	27	27	26	33	33	32	38
Pennsylvania.....	38	38	35	47	46	47	53
Other States:							
Iowa.....	21	26	-----	-----	-----	-----	-----
Kansas.....	26	29	-----	-----	-----	-----	-----
Michigan.....	31	-----	-----	-----	-----	-----	-----
Minnesota.....	18	-----	-----	-----	-----	-----	-----
South Dakota.....	27	28	-----	-----	-----	-----	-----
Tennessee.....	53	-----	-----	-----	-----	-----	-----

TABLE 4.—Mortality from certain causes in several States and in a group of insured wage earners, 1923-1929

State	Rate per 100,000 population						
	1929	1928	1927	1926	1925	1924	1923

TYPHOID FEVER (1)							
States with complete data:							
Total (12 States and District of Columbia)	2.8	3.1	3.7	4.7	6.4	5.3	5.4
Alabama	7.5	9.5	12.5	15.1	10.8	14.4	14.9
Arizona	12.7	7.4	9.2	5.4	11.0	8.0	8.2
California	2.1	2.4	2.4	2.7	2.8	5.7	3.9
Connecticut	.9	.6	1.1	1.8	2.5	2.5	2.6
District of Columbia	2.2	2.7	1.9	2.3	4.9	3.8	5.6
Indiana	8.5	4.4	4.8	6.7	8.1	7.1	7.0
Louisiana	11.2	12.9	14.6	17.3	34.0	21.9	14.3
Maryland	4.8	5.2	5.9	7.6	7.4	6.4	6.5
Minnesota	.8	.5	1.0	1.0	1.8	1.4	2.4
New Jersey	1.4	1.7	1.4	2.6	3.1	2.7	3.1
New York (exclusive of New York City)	1.6	2.1	2.1	3.4	3.4	3.5	3.6
Pennsylvania	2.0	1.9	2.7	3.7	4.8	3.9	4.0
Wisconsin	1.4	.8	1.4	1.4	2.0	1.0	2.2
Other States:							
Georgia	10.5						
Hawaii	4.0	6.3					
Illinois	1.4	2.2	2.4	3.2	4.6		
Iowa	2.3	2.3					
Kansas	2.9	2.5					
Michigan	1.8						
North Carolina	5.9	6.3					
South Carolina	13.3	18.1	22.2	26.3	24.8		
South Dakota	3.1	2.8					
Tennessee	12.2	13.4					
Virginia	4.1	(1)	6.9	10.6	12.1	8.3	10.5
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over	2.3	2.7	4.7	4.2	4.6	4.4	5.2

MEASLES (7)							
States with complete data:							
Total (12 States and District of Columbia)	2.5	3.9	3.3	7.7	2.7	6.3	11.1
Alabama	2.4	8.7	4.5	5.0	.8	16.3	12.5
Arizona	(2)	4.4	5.9	1.1	3.3	7.5	4.6
California	.4	.6	7.0	2.3	.7	7.7	7.7
Connecticut	2.9	3.7	1.3	12.5	2.5	3.1	10.8
District of Columbia	(2)	3.1	(2)	6.4	.8	.6	7.0
Indiana	3.8	2.0	1.7	12.4	1.9	5.8	8.8
Louisiana	2.7	9.0	13.0	.4	.4	23.8	6.3
Maryland	1.4	6.5	1.3	13.9	1.5	3.2	9.7
Minnesota	3.0	.4	2.2	6.7	.6	5.4	11.2
New Jersey	.9	6.3	.6	11.1	3.3	5.3	10.3
New York (exclusive of New York City)	2.7	3.5	2.6	4.6	3.0	4.5	8.5
Pennsylvania	3.6	4.8	2.5	11.0	5.3	3.2	17.8
Wisconsin	2.6	.4	3.3	5.0	2.2	2.6	7.1
Other States:							
Georgia	.9						
Hawaii	5.2	2.3					
Illinois	3.7	1.1	4.0	4.8	3.1		
Iowa	1.4	.5					
Kansas	2.5	.9					
Michigan	3.2						
North Carolina	.6	17.4					
South Carolina	.05	14.8	3.6	.3	.1		
South Dakota	2.1	1.6					
Tennessee	1.0	8.0					
Virginia	1.5	(1)	4.4	4.0	3.1	8.8	22.2
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over	2.4	4.2	3.4	8.0	2.5	5.7	8.4

¹ Not available² No deaths.

TABLE 4.—Mortality from certain causes in several States and in a group of insured wage earners, 1923-1929—Continued

State	Rate per 100,000 population						
	1929	1928	1927	1926	1925	1924	1923
SCARLET FEVER (8)							
States with complete data:							
Total (12 States and District of Columbia).....	2.0	1.8	2.0	2.3	2.7	3.4	3.9
Alabama.....	1.4	.4	.9	.6	.8	.6	.8
Arizona.....	2.3	2.1	1.3	1.6	1.2	2.9	3.1
California.....	2.1	1.2	1.4	1.1	1.5	2.5	3.0
Connecticut.....	.9	1.3	1.4	2.2	2.9	3.9	3.6
District of Columbia.....	2.0	1.3	1.5	1.3	1.0	1.6	2.3
Indiana.....	3.2	1.8	2.8	3.2	3.4	2.3	2.9
Louisiana.....	.6	.5	.6	.6	.5	.4	.3
Maryland.....	2.1	.8	1.1	1.3	1.1	2.7	3.3
Minnesota.....	2.4	2.3	3.4	5.8	6.0	8.1	9.3
New Jersey.....	1.1	1.6	2.5	2.2	1.8	1.8	2.7
New York (exclusive of New York City).....	2.0	2.1	1.9	2.1	2.1	3.3	3.4
Pennsylvania.....	2.4	2.5	2.6	2.8	3.6	3.8	4.4
Wisconsin.....	2.5	2.4	2.1	2.6	3.7	7.3	8.7
Other States:							
Georgia.....	1.2	-----	-----	-----	-----	-----	-----
Hawaii.....	(¹)	1.1	-----	-----	-----	-----	-----
Illinois.....	4.0	2.1	2.3	3.2	3.8	-----	-----
Iowa.....	2.3	2.3	-----	-----	-----	-----	-----
Kansas.....	3.3	2.7	-----	-----	-----	-----	-----
Michigan.....	3.2	-----	-----	-----	-----	-----	-----
North Carolina.....	1.8	1.3	-----	-----	-----	-----	-----
South Carolina.....	.8	.5	.2	.2	.3	-----	-----
South Dakota.....	2.6	2.7	-----	-----	-----	-----	-----
Tennessee.....	2.4	1.6	-----	-----	-----	-----	-----
Virginia.....	1.4	(¹)	1.2	1.3	1.6	1.3	1.9
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over.....	2.6	2.6	3.0	3.4	3.4	4.3	4.4
WHOOPIING COUGH (9)							
States with complete data:							
Total (12 States and District of Columbia).....	5.3	5.2	5.3	7.9	6.0	7.2	9.3
Alabama.....	9.8	7.8	13.6	11.8	9.0	16.1	13.4
Arizona.....	7.4	8.6	5.7	3.6	8.2	10.2	14.1
California.....	6.1	7.4	4.4	3.8	11.2	4.1	8.3
Connecticut.....	2.5	6.3	2.5	6.1	7.5	5.2	9.0
District of Columbia.....	4.3	4.0	3.1	7.4	4.1	2.6	7.0
Indiana.....	5.4	4.5	5.6	12.8	5.6	9.8	8.9
Louisiana.....	5.7	9.2	11.0	9.3	10.7	7.3	14.6
Maryland.....	8.0	7.3	12.0	11.6	11.2	9.1	17.1
Minnesota.....	4.2	2.8	2.8	6.6	3.7	5.2	6.1
New Jersey.....	4.8	4.8	4.7	4.6	6.8	7.3	6.5
New York (exclusive of New York City).....	3.8	3.9	3.7	7.2	3.4	5.7	6.4
Pennsylvania.....	5.0	5.3	4.5	9.6	6.8	7.4	10.8
Wisconsin.....	3.8	2.2	2.5	5.5	4.0	4.6	5.9
Other States:							
Georgia.....	8.6	-----	-----	-----	-----	-----	-----
Hawaii.....	28.7	4.3	-----	-----	-----	-----	-----
Illinois.....	3.4	3.7	4.2	5.1	4.4	-----	-----
Iowa.....	4.2	3.2	-----	-----	-----	-----	-----
Kansas.....	4.0	5.1	-----	-----	-----	-----	-----
Michigan.....	5.6	-----	-----	-----	-----	-----	-----
North Carolina.....	8.9	6.5	-----	-----	-----	-----	-----
South Carolina.....	11.7	9.7	12.8	4.9	7.3	-----	-----
South Dakota.....	3.7	4.8	-----	-----	-----	-----	-----
Tennessee.....	7.6	5.2	-----	-----	-----	-----	-----
Virginia.....	10.2	(¹)	17.8	12.6	10.2	20.9	16.6
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over.....	2.9	2.7	3.1	5.0	3.6	3.5	4.8

¹ Not available.² No deaths.

TABLE 4.—*Mortality from certain causes in several States and in a group of insured wage earners, 1923-1929—Continued*

State	Rate per 100,000 population						
	1929	1928	1927	1926	1925	1924	1923
DIPHTHERIA (10)							
States with complete data:							
Total (12 States and District of Columbia)	5.7	6.7	6.7	6.8	7.8	9.7	12.5
Alabama	9.5	9.2	9.8	8.2	6.8	6.1	8.5
Arizona	5.5	5.3	5.0	4.7	5.1	5.8	8.7
California	4.1	6.0	6.9	6.7	6.4	17.2	10.5
Connecticut	3.7	5.2	5.9	5.3	8.2	11.2	12.7
District of Columbia	6.2	8.2	4.4	5.5	7.2	6.0	8.7
Indiana	4.8	5.7	7.0	5.9	5.6	8.1	14.3
Louisiana	7.0	7.3	10.0	7.5	6.8	6.2	8.1
Maryland	4.6	6.5	7.4	6.2	5.6	7.6	10.0
Minnesota	2.4	2.6	3.1	5.8	8.9	8.5	8.4
New Jersey	11.6	12.0	10.9	8.6	9.1	9.6	13.9
New York (exclusive of New York City)	3.5	4.0	4.8	4.6	6.4	7.1	9.4
Pennsylvania	6.8	8.5	8.6	8.3	10.3	11.5	15.4
Wisconsin	2.7	3.3	4.4	5.4	6.1	7.3	13.0
Other States:							
Georgia	5.4	-----	-----	-----	-----	-----	-----
Hawaii	9.2	16.9	-----	-----	-----	-----	-----
Illinois	10.1	8.7	8.0	5.7	5.8	-----	-----
Iowa	1.3	2.8	-----	-----	-----	-----	-----
Kansas	3.7	3.3	-----	-----	-----	-----	-----
Michigan	10.9	-----	-----	-----	-----	-----	-----
North Carolina	11.7	11.1	-----	-----	-----	-----	-----
South Carolina	8.0	0.4	8.2	-----	-----	-----	-----
South Dakota	1.6	2.1	-----	-----	-----	-----	-----
Tennessee	8.4	7.8	-----	-----	-----	-----	-----
Virginia	7.3	(¹)	6.0	9.1	9.6	8.8	13.9
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over	8.5	9.4	10.2	9.5	10.2	12.7	15.5
INFLUENZA (11)							
States with complete data:							
Total (10 States and District of Columbia)	46.2	38.2	19.6	35.1	26.0	17.6	36.5
Alabama	121.3	71.6	30.4	68.8	46.1	26.7	49.6
Arizona	16.7	55.5	23.5	44.5	32.0	16.3	36.1
California	24.2	46.6	15.7	26.4	17.5	12.2	22.1
Connecticut	37.0	21.2	18.8	35.9	26.6	19.2	38.1
District of Columbia	17.9	15.2	17.2	24.8	12.3	6.6	32.9
Indiana	59.7	59.6	25.4	51.5	44.6	23.1	62.9
Minnesota	37.1	30.7	17.9	20.2	22.9	8.6	24.1
New Jersey	25.9	15.9	20.2	19.7	11.2	9.9	22.0
New York (exclusive of New York City)	37.5	18.3	13.9	29.9	14.7	11.0	29.7
Pennsylvania	54.2	41.7	24.5	44.0	29.2	25.8	44.3
Wisconsin	41.6	43.2	20.4	35.6	31.8	15.1	30.0
Other States:							
Georgia	78.1	-----	-----	-----	-----	-----	-----
Hawaii	18.1	24.4	-----	-----	-----	-----	-----
Illinois	35.1	-----	-----	-----	-----	-----	-----
Iowa	52.2	56.0	-----	-----	-----	-----	-----
Kansas	52.4	82.3	28.8	49.6	30.2	-----	-----
Louisiana	84.1	65.0	30.8	67.1	(¹)	(¹)	42.0
Michigan	38.6	-----	-----	-----	-----	-----	-----
North Carolina	83.2	47.1	-----	-----	-----	-----	-----
South Carolina	74.5	70.8	15.0	8.3	6.4	-----	-----
South Dakota	50.3	53.6	-----	-----	-----	-----	-----
Tennessee	109.8	66.9	-----	-----	-----	-----	-----
Virginia	86.1	(¹)	43.1	60.3	42.4	32.9	82.6
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over	36.9	21.9	15.7	27.4	19.4	14.2	30.1

¹ Not available.

TABLE 4.—Mortality from certain causes in several States and in a group of insured wage earners, 1923-1929—Continued

State	Rate per 100,000 population						
	1929	1928	1927	1926	1925	1924	1923
ACUTE ANTERIOR POLIOMYELITIS (22)							
States with complete data:							
Total (8 States and District of Columbia)	0.7	1.2	1.8	0.8	1.9	0.9	0.7
Arizona	.6	2.7	6.1	.7	3.0	.7	(1)
California	1.0	1.8	5.1	.7	3.5	.8	.8
Connecticut	.5	.8	1.0	.4	1.2	1.5	.7
District of Columbia	.7	.9	1.1	1.3	.8	.2	.2
Indiana	.3	.2	1.4	.6	.9	.5	.8
Louisiana	.6	1.0	2.0	.7	.8	.6	.5
Minnesota	.3	2.2	1.3	.6	5.5	1.2	.6
New York (exclusive of New York City)	1.4	1.7	.9	2.0	2.0	1.8	1.2
Pennsylvania	.6	.8	1.0	.5	.7	.4	.6
Other States:							
Alabama	1.0	.8	.9	1.0	.9		
Hawaii	1.1	.3					
Illinois	.2						
Iowa	.9	.7					
Kansas	.5	.5					
Michigan	1.1						
New Jersey	.4						
North Carolina	.6	.6					
South Carolina	.6	.9	1.3	.8	2.1		
South Dakota	1.1	2.4					
Tennessee	1.2	1.6					
Virginia	1.2						
Wisconsin	.4	.5					
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over	.6	1.2	2.0	.7	1.4	1.0	.7
MENINGOCOCCUS MENINGITIS (24)							
States with complete data:							
Total (6 States and District of Columbia)	3.6	1.4	1.0	1.0	0.8	0.7	1.0
Arizona	15.0	5.5	.2	.7	.5	.5	.3
California	8.3	2.5	2.3	2.4	.9	1.0	1.2
Connecticut	1.4	1.2	.6	.6	.8	1.5	3.1
District of Columbia	2.5	.9	.6	.8	.6	(2)	1.2
Indiana	2.8	.2	.3	.3	.5	.4	.4
Minnesota	1.7	1.6	2.2	.6	.7	.5	.8
Pennsylvania	2.2	1.0	.5	.9	.8	.7	.8
Other States:							
Alabama	1.0	.1					
Hawaii	22.6	4.0					
Illinois	3.4	3.0	1.8	.8	.8		
Iowa	1.6	.9					
Kansas	2.8	1.1					
Louisiana	2.8						
Michigan	18.5						
New Jersey	2.8						
New York	1.8						
North Carolina	.6	.03					
South Carolina	2.8	1.5	1.6	2.1	1.8		
South Dakota	1.3	.6					
Tennessee	2.3	.9					
Virginia	1.4	(1)	.9	.8	1.0	1.3	.9
Wisconsin	3.7						

¹ Not available.² No deaths.

TABLE 4.—Mortality from certain causes in several States and in a group of insured wage earners, 1923-1929—Continued

State	Rate per 100,000 population						
	1929	1928	1927	1926	1925	1924	1923
TUBERCULOSIS, ALL FORMS (31-37)							
States with complete data:							
Total (12 States and District of Columbia).....	79.5	81.6	83.3	90.3	92.6	95.4	99.1
Alabama.....	85.4	90.4	87.0	94.1	99.6	97.4	98.6
Arizona.....	330.0	302.1	304.6	315.5	329.2	315.3	311.3
California.....	128.5	133.3	134.4	134.2	141.1	148.8	147.3
Connecticut.....	60.5	67.4	66.8	78.2	75.3	81.5	89.3
District of Columbia.....	102.2	104.5	112.2	110.0	106.6	111.8	119.4
Indiana.....	70.8	70.0	70.4	84.0	82.2	84.0	94.7
Louisiana.....	91.7	92.0	88.4	98.1	102.1	103.3	107.1
Maryland.....	105.7	101.4	101.7	113.9	120.8	119.9	124.0
Minnesota.....	51.1	52.1	58.3	63.6	61.0	66.4	73.5
New Jersey.....	75.9	71.0	75.3	84.0	83.1	86.6	92.0
New York (exclusive of New York City).....	72.4	76.0	77.5	84.8	88.7	91.4	100.9
Pennsylvania.....	62.5	67.3	69.9	77.0	76.9	81.9	85.1
Wisconsin.....	52.5	55.1	59.3	64.8	61.0	62.9	65.8
Other States:							
Georgia.....	67.1	-----	-----	-----	-----	-----	-----
Hawaii.....	113.2	124.1	-----	-----	-----	-----	-----
Illinois.....	70.0	73.6	76.4	76.3	78.1	-----	-----
Iowa.....	34.1	35.3	-----	-----	-----	-----	-----
Kansas.....	38.5	40.5	35.3	41.0	43.0	42.2	-----
Michigan.....	68.5	-----	-----	-----	-----	-----	-----
North Carolina.....	88.6	81.5	-----	-----	-----	-----	-----
South Carolina.....	72.5	85.2	83.0	88.8	89.3	-----	-----
South Dakota.....	52.6	63.9	-----	-----	-----	-----	-----
Tennessee.....	123.9	127.6	-----	-----	-----	-----	-----
Virginia.....	85.6	-----	-----	-----	-----	-----	-----
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over.....	85.6	90.6	93.8	99.5	98.2	101.4	110.5
CANCER (43-49)							
States with complete data:							
Total (12 States and the District of Columbia).....	105.8	103.6	101.7	101.0	100.0	97.5	95.1
Alabama.....	50.7	50.8	50.6	46.1	44.7	45.9	42.6
Arizona.....	48.1	47.7	45.5	41.3	41.1	30.4	42.5
California.....	143.1	140.5	133.7	130.6	126.3	126.3	121.0
Connecticut.....	110.6	108.4	106.9	106.7	107.6	104.1	98.2
District of Columbia.....	115.4	110.1	112.0	109.1	108.0	106.4	99.8
Indiana.....	100.7	100.4	102.0	106.3	100.3	97.6	99.4
Louisiana.....	68.4	67.9	67.9	65.2	63.3	62.1	59.2
Maryland.....	109.9	114.2	100.1	107.5	103.9	102.8	108.0
Minnesota.....	106.8	106.3	101.9	99.7	104.3	99.5	98.8
New Jersey.....	113.4	106.7	105.2	103.6	103.7	97.7	92.9
New York (exclusive of New York City).....	126.3	123.5	125.1	122.0	121.2	119.9	123.6
Pennsylvania.....	96.2	95.6	95.3	95.4	91.8	91.5	89.9
Wisconsin.....	108.4	105.0	101.0	106.4	103.4	98.9	91.6
Other States:							
Georgia.....	44.2	-----	-----	-----	-----	-----	-----
Hawaii.....	66.2	62.2	-----	-----	-----	-----	-----
Iowa.....	109.3	113.3	-----	-----	-----	-----	-----
Kansas.....	94.4	100.5	100.6	91.9	84.3	76.9	-----
Michigan.....	95.7	-----	-----	-----	-----	-----	-----
South Carolina.....	39.4	41.3	39.0	38.0	38.8	-----	-----
South Dakota.....	66.3	69.5	-----	-----	-----	-----	-----
Tennessee.....	59.4	58.8	-----	-----	-----	-----	-----
Virginia.....	58.8	(1)	61.5	61.5	61.9	60.3	59.6
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over.....	77.3	77.0	75.6	75.1	71.8	71.5	72.7

1 Not available.

TABLE 4.—Mortality from certain causes in several States and in a group of insured wage earners, 1923-1929—Continued

State	Rate per 100,000 population						
	1920	1928	1927	1926	1925	1924	1923
DIABETES MELLITUS (37)							
States with complete data.							
Total (4 States and District of Columbia).....	21.2	20.7	18.7	18.9	17.8	17.4	18.1
Alabama.....	9.0	9.7	8.2	7.8	6.7	5.6	5.5
Arizona.....	4.4	3.2	2.4	5.8	3.3	6.1	5.6
District of Columbia.....	24.3	21.1	20.2	19.9	14.0	16.2	16.9
New York (exclusive of New York City).....	26.7	25.1	24.4	23.8	22.6	21.4	24.5
Pennsylvania.....	21.5	21.7	19.0	19.6	18.2	18.6	18.8
Other States:							
California.....	22.9	21.9	.....	.....	.....	.....	.....
Connecticut.....	16.7	.....	.....	.....	.....	.....	.....
Georgia.....	9.2	.....	.....	.....	.....	.....	.....
Hawaii.....	12.9	7.2	.....	.....	.....	.....	.....
Indiana.....	15.1	.....	.....	.....	.....	.....	.....
Iowa.....	18.7	19.5	.....	.....	.....	.....	.....
Kansas.....	21.8	20.7	.....	.....	.....	.....	.....
Louisiana.....	11.9	12.4	(1)	(1)	8.7	8.3	9.1
Michigan.....	20.4	.....	.....	.....	.....	.....	.....
Minnesota.....	17.5	18.8	.....	.....	.....	.....	.....
New Jersey.....	23.8	.....	.....	.....	.....	.....	.....
South Carolina.....	7.9	8.3	6.7	7.0	5.9	.....	.....
South Dakota.....	18.3	17.6	.....	.....	.....	.....	.....
Tennessee.....	10.5	9.6	.....	.....	.....	.....	.....
Virginia.....	11.1	(1)	10.7	8.9	10.2	9.0	11.7
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over.....	18.3	17.9	17.1	17.0	15.5	15.1	16.2
CEREBRAL HEMORRHAGE, APOPLEXY (74)							
States with complete data:							
Total (6 States and District of Columbia).....	94.5	94.9	90.9	96.4	99.4	101.3	97.5
Alabama.....	64.8	58.2	50.8	52.9	52.3	48.1	43.5
Arizona.....	43.0	37.1	42.7	31.9	32.0	33.3	36.1
District of Columbia.....	73.4	92.9	90.9	104.2	103.3	105.2	113.6
Indiana.....	109.4	110.8	102.4	109.3	105.5	106.0	104.3
Louisiana.....	64.2	68.1	69.0	63.6	68.3	62.6	54.5
Maryland.....	101.8	100.1	99.5	112.8	123.2	120.2	120.7
New York (exclusive of New York City).....	115.7	115.6	112.1	121.2	119.6	130.6	135.2
Other States:							
California.....	96.8	99.9	.....	.....	.....	.....	.....
Georgia.....	70.7	.....	.....	.....	.....	.....	.....
Hawaii.....	55.3	61.9	.....	.....	.....	.....	.....
Iowa.....	98.5	99.1	.....	.....	.....	.....	.....
Kansas.....	111.1	114.7	100.2	101.1	95.7	.....	.....
Michigan.....	96.9	.....	.....	.....	.....	.....	.....
Minnesota.....	70.6	.....	.....	.....	.....	.....	.....
New Jersey.....	86.5	.....	.....	.....	.....	.....	.....
Pennsylvania.....	84.1	.....	.....	.....	.....	.....	.....
South Dakota.....	53.7	53.4	.....	.....	.....	.....	.....
Tennessee.....	60.8	.....	.....	.....	.....	.....	.....
Virginia.....	83.7	.....	.....	.....	.....	.....	.....
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over.....	57.7	57.6	56.0	56.5	54.4	61.1	61.9

¹ Not available.

TABLE 4.—Mortality from certain causes in several States and in a group of insured wage earners, 1923-1929—Continued

State	Rate per 100,000 population						
	1929	1928	1927	1926	1925	1924	1923
HEART DISEASES (87-90)							
States with complete data:							
Total (7 States and District of Columbia)	233.5	227.3	209.5	214.5	202.7	189.9	185.5
Alabama	136.3	134.4	103.3	108.5	101.3	95.3	79.0
Arizona	115.4	115.4	103.5	104.3	95.3	84.4	71.9
District of Columbia	285.0	272.8	247.4	249.6	257.6	196.4	213.8
Indiana	199.1	189.6	171.0	168.8	159.9	156.3	150.7
Louisiana	204.1	192.7	177.8	179.4	191.6	189.5	159.1
Maryland	236.6	234.4	220.9	230.6	207.9	193.1	202.9
New York (exclusive of New York City)	318.8	308.6	286.7	302.8	273.4	261.3	266.7
Pennsylvania	227.5	227.1	214.0	216.0	198.0	186.0	186.3
Other States:							
California	300.8	280.6					
Connecticut	184.6	174.0					
Georgia	112.7						
Hawaii	121.2	112.9					
Iowa	218.5	215.4					
Kansas	167.0	177.8					
Michigan	222.3						
Minnesota	145.7	150.7					
New Jersey	255.2						
South Dakota	123.4	117.6					
Tennessee	133.4	127.1					
Virginia	165.5	(¹)	166.1	171.3	160.5	157.4	149.4
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over [other (organic) heart only (90)]	146.1	144.4	134.7	136.4	128.7	125.2	128.7
PNEUMONIA, ALL FORMS (100, 101)							
States with complete data:							
Total (11 States and District of Columbia)	96.9	96.5	76.9	99.7	98.5	101.2	112.2
Alabama	88.8	100.0	68.4	96.4	106.0	120.4	91.1
Arizona	117.9	150.8	121.0	128.5	129.9	158.4	127.9
California	95.2	98.0	85.4	84.0	86.7	96.2	97.5
Connecticut	100.4	100.3	84.8	108.6	109.3	101.8	127.3
District of Columbia	125.5	115.6	106.9	152.8	124.5	147.9	209.7
Indiana	99.7	103.9	78.9	112.5	100.8	100.7	120.1
Louisiana	91.3	100.6	45.7	61.0	108.3	113.2	97.0
Minnesota	60.1	69.1	63.1	70.2	70.7	69.4	76.1
New Jersey	107.4	82.3	55.4	79.5	69.0	63.5	74.2
New York (exclusive of New York City)	104.9	98.1	86.3	113.9	97.7	91.9	121.3
Pennsylvania	101.7	115.8	98.1	133.0	126.0	137.0	155.4
Wisconsin	73.5	80.6	64.8	82.5	88.7	89.4	106.3
Other States:							
Georgia	69.7						
Hawaii	144.7	148.7					
Illinois	83.4	103.4	75.0	92.0	83.3		
Iowa	64.7	71.1					
Kansas	59.1	63.4	50.9	69.1	66.0	68.3	
Michigan	92.0						
North Carolina	96.1	97.6					
South Carolina	90.0	104.5	98.3	125.5	108.2		
South Dakota	61.1	66.3					
Tennessee	94.7	97.1					
Virginia	71.3	(¹)	70.4	92.2	83.4	96.5	98.2
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over	72.6	72.8	63.0	78.2	69.0	70.2	77.6

¹ Not available.

TABLE 4.—Mortality from certain causes in several States and in a group of insured wage earners, 1923-1929—Continued

State	Rate per 100,000 population						
	1923	1928	1927	1926	1925	1924	1923
DIARRHEA AND ENTERITIS UNDER 2 YEARS (113)							
States with complete data:							
Total (10 States and District of Columbia).....	18.2	18.9	20.6	25.5	33.5	30.5	35.0
Alabama.....	27.4	35.4	30.2	36.2	31.4	34.1	35.0
Arizona.....	107.2	93.2	78.2	60.0	115.2	113.4	94.6
California.....	18.5	18.1	22.0	22.9	27.5	31.4	36.2
Connecticut.....	13.3	6.5	11.2	16.0	18.6	19.8	21.3
District of Columbia.....	16.1	12.7	10.7	24.2	32.7	22.4	28.9
Indiana.....	17.1	17.7	17.0	27.2	31.3	26.0	29.0
Louisiana.....	27.9	26.1	38.3	33.0	56.5	51.8	33.3
New Jersey.....	12.6	14.9	16.6	20.4	26.1	26.2	30.1
New York (exclusive of New York City).....	11.3	12.2	13.9	18.5	24.7	21.0	29.1
Pennsylvania.....	19.1	21.4	22.7	31.5	42.0	36.1	47.6
Wisconsin.....	11.5	10.6	13.8	15.1	20.1	14.6	18.6
Other States.....							
Georgia.....	16.2						
Hawaii.....	105.7	82.8					
Iowa.....	4.0	6.1					
Kansas.....	10.6	17.2	21.1	29.5	37.0		
Michigan.....	16.0						
Minnesota.....	3.9						
North Carolina.....	32.1	40.8					
South Dakota.....	5.4	8.9					
Tennessee.....	24.7	32.7					
Virginia.....	18.5	(1)	30.9	39.1	43.0	33.7	43.5
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over, including adults as well as children under 2 years.....	7.8	8.7	9.1	10.5	12.3	11.3	11.1
NEPHRITIS (128, 129)							
States with complete data:							
Total (9 States and District of Columbia).....	105.2	106.1	102.5	108.4	102.7	99.9	101.0
Alabama.....	90.0	86.9	76.2	83.4	82.6	72.6	77.7
Arizona.....	39.0	39.5	37.3	42.9	43.9	40.9	39.4
California.....	107.8	113.1	110.4	107.3	91.8	95.2	96.6
District of Columbia.....	142.4	135.9	154.6	138.8	108.0	122.6	124.0
Indiana.....	81.6	81.7	80.3	95.6	89.6	93.2	92.7
Louisiana.....	115.0	118.1	97.5	107.2	85.2	81.5	75.0
Maryland.....	150.6	138.2	149.8	157.0	148.8	140.3	138.8
New Jersey.....	103.3	101.9	97.4	102.2	97.6	105.1	104.2
New York (exclusive of New York City).....	110.6	110.2	113.7	123.8	118.2	111.8	117.3
Pennsylvania.....	101.6	107.7	102.0	107.0	104.0	99.0	103.5
Other States.....							
Connecticut.....	67.8						
Georgia.....	121.8						
Iowa.....	50.0	53.0					
Kansas.....	92.3	95.7	83.9	89.1	78.1		
Michigan.....	68.5						
Minnesota.....	52.7	53.8					
South Carolina.....	100.2	101.5	93.4	97.1	98.2		
South Dakota.....	38.2	38.9					
Tennessee.....	71.1						
Virginia.....	96.5	(1)	106.9	112.1	109.5	99.6	93.3
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over.....	69.2	71.8	70.8	74.9	71.2	66.5	69.6

¹ Not available

DEATHS DURING WEEK ENDED APRIL 19, 1930

Summary of information received by telegraph from industrial insurance companies for the week ended April 19, 1930, and corresponding week of 1929. (From the Weekly Health Index, April 23, 1930, issued by the Bureau of the Census, Department of Commerce)

	Week ended Apr. 19, 1930	Corresponding week, 1929
Policies in force.....	75, 207, 702	73, 966, 398
Number of death claims.....	13, 465	15, 325
Death claims per 1,000 policies in force, annual rate	9. 3	10. 8

Deaths from all causes in certain large cities of the United States during the week ended, April 19, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index, April 23, 1930, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Apr. 19, 1930		Annual death rate per 1,000 corre- sponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Apr. 19, 1930 ¹
	Total deaths	Death rate ¹		Week ended Apr. 19, 1930	Corre- sponding week, 1929	
Total (65 cities).....	7, 683	13. 7	12. 8	674	718	60
Akron.....	54			8	9	73
Albany.....	60	26. 0	16. 9	4	6	87
Atlanta.....	72	14. 7	15. 1	7	9	74
White.....	34			3	3	95
Colored.....	38	(²)	(²)	4	6	63
Baltimore.....	227	14. 3	13. 1	16	15	54
White.....	152			14	10	60
Colored.....	75	(²)	(²)	2	5	32
Birmingham.....	68	15. 9	19. 9	7	13	65
White.....	31			2	4	31
Colored.....	37	(²)	(²)	5	9	118
Boston.....	261	17. 0	14. 5	35	26	99
Bridgeport.....	30			2	2	34
Buffalo.....	175	16. 4	14. 1	18	18	80
Cambridge.....	22	9. 1	9. 1	0	2	0
Camden.....	28	10. 8	11. 1	6	4	91
Canton.....	33	14. 7	10. 3	5	2	124
Chicago.....	690	11. 4	12. 5	58	77	51
Cincinnati.....	139			10	13	59
Cleveland.....	242	12. 5	10. 6	15	24	45
Columbus.....	87	15. 2	13. 1	13	8	127
Dallas.....	59	14. 1	13. 9	6	2	
White.....	40			4	2	
Colored.....	13	(²)	(²)	2	0	
Dayton.....	38	10. 7	10. 5	3	4	44
Denver.....	83	14. 7	12. 8	5	7	52
Des Moines.....	24	8. 2	11. 3	1	4	17
Detroit.....	313	11. 8	12. 2	41	44	63
Duluth.....	24	10. 7	8. 0	1	0	27
El Paso.....	26	11. 5	13. 7	5	8	
Erie.....	23			2	4	43
Fall River.....	41	15. 9	13. 2	3	3	69
Flint.....	21	7. 4	8. 8	6	4	70
Fort Worth.....	32	9. 8	7. 6	2	3	
White.....	28			2	2	
Colored.....	4	(²)	(²)	0	1	
Grand Rapids.....	32	10. 2	10. 5	3	2	46
Houston.....	57			1	6	
White.....	28			1	3	
Colored.....	29	(²)	(²)	0	3	
Indianapolis.....	123	16. 8	17. 1	7	13	52
White.....	109			7	10	61
Colored.....	14	(²)	(²)	0	3	0

¹ Annual rate per 1,000 population.

² Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.

³ Data for 71 cities.

⁴ Deaths for week ended Friday.

⁵ In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

Deaths from all causes in certain large cities of the United States during the week ended April 19, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index, April 23, 1930, issued by the Bureau of the Census, Department of Commerce)—Continued

City	Week ended Apr. 10, 1930		Annual death rate per 1,000 corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Apr. 10, 1930
	Total deaths	Death rate		Week ended Apr. 19, 1930	Corresponding week, 1929	
Jersey City.....	84	13.5	9.5	5	7	43
Kansas City, Kans.....	27	11.9	16.3	4	6	95
White.....	18			4	2	106
Colored.....	9	(⁵)	(⁵)	0	4	0
Knoxville.....	29	14.3	6.4	0	0	0
White.....	21			0	0	0
Colored.....	8	(⁵)	(⁵)	0	0	0
Los Angeles.....	246			15	33	46
Louisville.....	82	13.0	9.3	3	5	26
White.....	71			3	3	30
Colored.....	11	(⁵)	(⁵)	0	2	0
Lowell.....	31			4	6	95
Lynn.....	24	11.9	10.4	1	2	25
Memphis.....	96	26.3	10.4	12	2	143
White.....	56			6	2	110
Colored.....	41	(⁵)	(⁵)	6	0	202
Milwaukee.....	115	11.0	13.5	11	33	55
Minneapolis.....	112	12.8	12.5	10	6	65
Nashville.....	64	23.9	18.3	9	2	139
White.....	43			6	1	123
Colored.....	21	(⁵)	(⁵)	3	1	190
New Bedford.....	24			1	3	26
New Haven.....	49	13.6	10.5	1	2	19
New Orleans.....	167	20.3	18.3	15	18	87
White.....	106			13	8	115
Colored.....	61	(⁵)	(⁵)	2	10	34
New York.....	1,623	14.1	12.7	135	128	57
Bronx Borough.....	204	11.2	10.0	10	14	23
Brooklyn Borough.....	531	12.0	11.7	45	60	48
Manhattan Borough.....	685	20.4	17.8	63	41	103
Queens Borough.....	150	9.2	7.6	17	12	40
Richmond Borough.....	53	18.3	14.5	0	1	0
Newark, N. J.....	127	14.0	11.7	18	13	94
Oakland.....	74	14.1	9.3	4	2	48
Oklahoma City.....	40			3	4	59
Omaha.....	71	16.6	14.5	4	5	45
Paterson.....	39	14.0	12.2	3	3	52
Philadelphia.....	487	12.3	12.1	41	31	61
Pittsburgh.....	205	15.9	12.7	22	24	81
Portland, Oreg.....	71			3	4	37
Providence.....	75	13.7	16.8	8	14	73
Richmond.....	50	13.4	11.5	4	6	59
White.....	33			2	3	45
Colored.....	17	(⁵)	(⁵)	2	3	87
Rochester.....	98	15.6	9.2	10	7	88
St. Louis.....	222	13.6	14.1	7	26	23
St. Paul.....	54			2	11	20
Salt Lake City ¹	22	8.3	12.1	2	0	31
San Antonio.....	88	21.0	15.8	14	14	-----
San Diego.....	44			6	1	126
San Francisco.....	162	14.4	18.2	8	11	55
Schenectady.....	24	13.4	14.5	2	1	62
Seattle.....	80	10.9	13.1	4	5	40
Somerville.....	17	8.6	10.7	4	2	130
Spokane.....	38	18.2	16.2	1	3	26
Springfield, Mass.....	30	10.4	10.8	2	6	32
Syracuse.....	50	13.1	12.6	3	1	37
Toledo.....	87	14.5	13.3	5	12	46
Trenton.....	36	13.5	15.4	3	4	56
Utica.....	38	19.0	14.0	5	3	142
Washington, D. C.....	167	15.8	12.0	12	7	70
White.....	101			7	3	60
Colored.....	66	(⁵)	(⁵)	5	4	89
Waterbury.....	18			1	3	26
Wilmington, Del.....	25	10.1	15.0	5	1	113
Worcester.....	59	15.6	14.8	6	2	78
Yonkers.....	29	12.5	7.3	1	1	24
Youngstown.....	30	9.0	8.7	4	5	63

¹ In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended April 19, 1930, and April 20, 1929

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended April 19, 1930, and April 20, 1929

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Apr. 19, 1930	Week ended Apr. 20, 1929	Week ended Apr. 19, 1930	Week ended Apr. 20, 1929	Week ended Apr. 19, 1930	Week ended Apr. 20, 1929	Week ended Apr. 19, 1930	Week ended Apr. 20, 1929
New England States:								
Maine.....	1	4	9	5	30	131	0	0
New Hampshire.....			5		5	56	0	0
Vermont.....	3				92	4	0	0
Massachusetts.....	72	86	16	14	1,071	391	2	2
Rhode Island.....	10	11	2	1	3	82	0	0
Connecticut.....	16	29	10	18	26	570	2	3
Middle Atlantic States:								
New York.....	115	329	21	20	1,871	1,002	16	29
New Jersey.....	117	108	20	3	1,314	289	2	8
Pennsylvania.....	130	119			1,800	1,899	10	11
East North Central States:								
Ohio.....	28	32	20	10	744	1,168	6	9
Indiana.....	16	21			121	399	20	0
Illinois.....	135	130	15	19	702	1,774	13	18
Michigan.....	66	68		1	1,874	958	38	64
Wisconsin.....	11	15	35	17	674	1,229	3	10
West North Central States:								
Minnesota.....	9	24	3	5	201	811	3	2
Iowa.....	4	4			427	57	8	0
Missouri.....	32	47	14	2	105	236	18	28
North Dakota.....	2	4			19	77	4	4
South Dakota.....	2				119	48	0	0
Nebraska.....	20	19		4	355	149	1	1
Kansas.....	12	11		12	812	488	0	5
South Atlantic States:								
Delaware.....	5			1	12	29	0	0
Maryland.....	18	31	25	12	42	25	2	1
District of Columbia.....	5	7			26	19	0	0
Virginia.....								
West Virginia.....	13	7	14	14	122	379	5	0
North Carolina.....	32	16	24		62	26	6	0
South Carolina.....	12	9	639	351		18	2	0
Georgia.....	11	7	76	31	226	22	0	0
Florida.....	2	10		3	282	56	0	0

¹ New York City only.

² Week ended Friday.

*Cases of certain communicable diseases reported by telegraph by State health officers
for weeks ended April 19, 1930, and April 20, 1929—Continued*

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Apr. 19, 1930	Week ended Apr. 20, 1929	Week ended Apr. 19, 1930	Week ended Apr. 20, 1929	Week ended Apr. 19, 1930	Week ended Apr. 20, 1929	Week ended Apr. 19, 1930	Week ended Apr. 20, 1929
East South Central States:								
Kentucky.....		5			69	41	4	1
Tennessee.....	2	1	29	28	143	33	8	6
Alabama.....	17	8	52	26	130	130	6	7
Mississippi.....	7	12					14	
West South Central States.								
Arkansas.....	6	6	130	17	72	69	3	8
Louisiana.....	38	20	14	15	92	58	4	2
Oklahoma ¹	6	8	29	49	259	64	2	2
Texas.....	25	29	8	32	170	100	1	0
Mountain States:								
Montana.....	5	6			5	66	2	4
Idaho.....					7	4	2	2
Wyoming.....	1		2	8	23	25	0	2
Colorado.....	4	7		7	930	14	4	4
New Mexico.....	5	2		1	60	5	0	0
Arizona.....	2	2	1	1	128	2	8	4
Utah ²	1	3	0	2	232	7	6	12
Pacific States								
Washington.....	9	3		3	524	170	3	19
Oregon.....	5	6	25	64	99	215	1	2
California.....	46	52	18	58	1,766	109	14	20

Division and State	Polioomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Apr. 19, 1930	Week ended Apr. 20, 1929	Week ended Apr. 19, 1930	Week ended Apr. 20, 1929	Week ended Apr. 19, 1930	Week ended Apr. 20, 1929	Week ended Apr. 19, 1930	Week ended Apr. 20, 1929
New England States:								
Maine.....	0	0	39	16	0	8	4	9
New Hampshire.....	0	2	10	12	0	1	0	0
Vermont.....	0	0	5	6	0	5	1	0
Massachusetts.....	0	0	232	331	0	0	3	2
Rhode Island.....	0	0	35	8	0	0	0	0
Connecticut.....	0	0	92	57	0	1	1	0
Middle Atlantic States								
New York.....	2	4	557	527	4	0	17	14
New Jersey.....	0	1	242	168	0	0	3	0
Pennsylvania.....	1	0	469	416	1	0	16	15
East North Central States								
Ohio.....	0	0	277	211	148	50	1	9
Indiana.....	0	0	191	186	167	41	1	1
Illinois.....	0	0	531	416	150	108	11	8
Michigan.....	0	0	294	409	88	69	0	1
Wisconsin.....	0	0	240	137	0	3	1	1
West North Central States.								
Minnesota.....	0	0	93	143	6	6	1	4
Iowa.....	0	1	62	137	111	32	1	11
Missouri.....	0	0	185	69	64	15	10	14
North Dakota.....	0	0	24	43	24	9	1	2
South Dakota.....	0	0	12	8	65	104	1	0
Nebraska.....	0	0	70	120	66	31	0	3
Kansas.....	0	0	141	122	107	89	5	6
South Atlantic States:								
Delaware.....	0	0	11	2	0	0	0	0
Maryland ¹	0	0	128	46	0	0	3	7
District of Columbia.....	0	0	23	18	0	0	1	1
Virginia.....	1							
West Virginia.....	0	0	44	17	0	19	12	9
North Carolina.....	0	1	50	14	21	23	4	5
South Carolina.....	0	0	5	6	6	5	3	5
Georgia.....	0	0	22	13	0	0	6	3
Florida.....	0	4	10	6	0	3	3	5

¹ Week ended Friday.

² Figures for 1930 are exclusive of Oklahoma City and Tulsa.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended April 19, 1930, and April 20, 1929—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Apr. 19, 1930	Week ended Apr. 20, 1929	Week ended Apr. 19, 1930	Week ended Apr. 20, 1929	Week ended Apr. 19, 1930	Week ended Apr. 20, 1929	Week ended Apr. 19, 1930	Week ended Apr. 20, 1929
East South Central States:								
Kentucky.....	0	0	59	70	11	0	4	0
Tennessee.....	1	0	52	23	15	6	6	5
Alabama.....	0	0	13	8	3	2	7	2
Mississippi.....	0	0	10	3	14	2	8	11
West South Central States:								
Arkansas.....	0	0	8	19	9	0	16	5
Louisiana.....	0	0	15	48	12	2	5	19
Oklahoma ¹	0	0	35	47	94	95	7	7
Texas.....	0	0	32	45	48	87	1	4
Mountain States:								
Montana.....	0	0	48	19	18	9	2	1
Idaho.....	0	0	7	6	1	8	0	0
Wyoming.....	0	0	3	17	4	7	0	0
Colorado.....	0	0	24	31	12	11	3	2
New Mexico.....	0	0	16	18	5	1	1	3
Arizona.....	0	0	14	8	21	9	4	1
Utah ²	0	0	12	8	0	7	0	0
Pacific States:								
Washington.....	0	0	26	42	65	47	1	10
Oregon.....	2	1	20	26	27	30	2	1
California.....	0	1	147	444	77	77	13	4

² Week ended Friday³ Figures for 1930 are exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week

State	Menin- gococ- cus menin- gitis	Diph- theria	Influenza	Ma- laria	Meas- les	Pel- lagra	Polio- myo- litis	Scarlet fever	Small- pox	Ty- phoid fever
<i>February, 1930</i>										
Hawaii Territory.....	4	30	30	-----	00	-----	2	4	0	5
<i>March, 1930</i>										
Idaho.....	12	5	1	-----	375	-----	0	44	59	5
Illinois.....	61	664	303	10	2,761	3	5	2,512	536	22
Louisiana.....	14	86	112	33	497	26	0	89	9	54
Maine.....	5	12	72	-----	280	1	1	240	0	4
Minnesota.....	21	58	8	-----	1,199	-----	2	668	27	20
Missouri.....	99	239	145	15	727	-----	5	645	448	19
Rhode Island.....	-----	57	4	-----	16	-----	0	108	-----	0
South Dakota.....	3	24	30	-----	618	-----	0	127	280	2
West Virginia.....	6	75	166	-----	490	1	0	180	137	94

*February, 1930**March, 1930*

Hawaii Territory:	Cases	Chicken pox:	Cases
Broncho-pneumonia.....	39	Idaho.....	63
Chicken pox.....	69	Illinois.....	1,399
Conjunctivitis, follicular.....	22	Louisiana.....	66
Dysentery (amebic).....	1	Maine.....	248
Hookworm disease.....	1	Minnesota.....	466
Impetigo contagiosa.....	3	Missouri.....	548
Leprosy.....	5	Rhode Island.....	70
Mumps.....	7	South Dakota.....	153
Pneumonia (lobar).....	41	West Virginia.....	361
Trachoma.....	2	Conjunctivitis:	
Whooping cough.....	19	Illinois.....	2

Dysentery:	Cases	Rocky Mountain spotted or tick fever:	Cases
Illinois.....	11	Idaho.....	1
Louisiana.....	1	Septic sore throat:	
Minnesota (amebic).....	6	Idaho.....	2
German measles:		Illinois.....	15
Illinois.....	237	Louisiana.....	3
Maine.....	26	Maine.....	5
Rhode Island.....	65	Missouri.....	62
Hookworm disease:		Rhode Island.....	2
Louisiana.....	9	Tetanus:	
Lead poisoning:		Illinois.....	2
Illinois.....	7	Louisiana.....	3
Leprosy:		Trachoma:	
Louisiana.....	1	Illinois.....	10
Lethargic encephalitis:		Minnesota.....	1
Illinois.....	6	Missouri.....	32
Maine.....	1	Rhode Island.....	9
Mumps:		Tularaemia:	
Idaho.....	84	Illinois.....	5
Illinois.....	977	Louisiana.....	4
Louisiana.....	10	Undulant fever:	
Maine.....	410	Illinois.....	6
Missouri.....	256	Louisiana.....	2
Rhode Island.....	2	Maine.....	2
South Dakota.....	47	Minnesota.....	2
Ophthalmia neonatorum:		Missouri.....	6
Illinois.....	29	West Virginia.....	1
Louisiana.....	1	Vincent's angina	
South Dakota.....	1	Maine.....	4
Paratyphoid fever:		Whooping cough:	
Idaho.....	1	Idaho.....	31
Illinois.....	1	Illinois.....	834
Louisiana.....	1	Louisiana.....	50
Maine.....	7	Maine.....	173
Minnesota.....	2	Minnesota.....	266
Puerperal septicaemia:		Missouri.....	219
Illinois.....	7	Rhode Island.....	156
Rabies in animals:		South Dakota.....	55
Illinois.....	2	West Virginia.....	283
Louisiana.....	14		
Rhode Island.....	11		

PATIENTS IN INSTITUTIONS FOR FEEBLE-MINDED, JULY TO SEPTEMBER, 1929

Reports for the third quarter of the year 1929 have been received by the Public Health Service from 30 institutions for the care of the feeble-minded, located in 25 States. The total number of patients in these institutions on September 30, 1929, including those on temporary leave or otherwise absent, but still on the books, was 34,135.

The first admissions were as follows:

	Male	Female	Total
July.....	170	178	348
August.....	229	154	383
September.....	180	161	341
Total.....	579	493	1,072

Of the first admissions during the three months, 54 per cent were males and 46 per cent were females, the ratio being 117 males per 100 females.

On September 30, 1929, there were 17,295 male and 16,840 female patients on the books. During the three months 306 patients were discharged; 104 male and 85 female patients died.

The annual death rates based on the estimated number of patients on the books of the institutions the middle of August were: Males, 24.09 per 1,000; females, 20.19 per 1,000; persons, 22.17 per 1,000.

The following table shows the numbers of patients in the institutions and on temporary leave on July 1 and at the end of each month of the third quarter of 1929, and the percentage of the total patients who were on leave:

	July 1, 1929	July 31, 1929	Aug. 31, 1929	Sept. 30, 1929
Patients in institutions:				
Male.....	14,088	13,975	14,335	14,534
Female.....	14,351	14,343	14,527	14,760
Total.....	28,439	28,318	28,862	29,294
Patients on temporary leave:				
Male.....	2,792	3,023	2,923	2,761
Female.....	2,165	2,297	2,234	2,060
Total.....	4,957	5,320	5,157	4,841
Total patients on books:				
Male.....	16,880	16,998	17,258	17,295
Female.....	16,516	16,640	16,761	16,840
Total.....	33,396	33,638	34,019	34,135
Per cent of total patients on temporary leave:				
Male.....	16.5	17.8	16.9	16.0
Female.....	13.1	13.8	13.3	12.4
Total.....	14.8	15.8	15.2	14.2

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 96 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 31,895,000. The estimated population of the 87 cities reporting deaths is more than 29,860,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended April 12, 1930, and April 13, 1929

	1930	1929	Estimated expectancy
<i>Cases reported</i>			
Diphtheria:			
46 States.....	1,090	1,417	-----
96 cities.....	585	747	850
Measles:			
44 States.....	18,766	15,873	-----
96 cities.....	7,536	4,919	-----
Meningococcus meningitis:			
46 States.....	314	334	-----
96 cities.....	155	92	-----
Poliomyelitis:			
47 States.....	22	23	-----
Scarlet fever:			
46 States.....	5,235	5,074	-----
96 cities.....	2,000	1,633	1,409
Smallpox:			
46 States.....	1,601	1,007	-----
96 cities.....	180	72	73
Typhoid fever:			
46 States.....	147	220	-----
96 cities.....	29	74	33
<i>Deaths reported</i>			
Influenza and pneumonia:			
87 cities.....	1,073	871	-----
Smallpox:			
87 cities.....	1	0	-----
Boise, Idaho.....	1	0	-----

City reports for week ended April 12, 1930

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during non-epidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1921 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneu- monia, deaths reported
		Cases, estimated expect- ancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND								
Maine:								
Portland	6	1	0	-----	0	2	42	3
New Hampshire:								
Concord	0	0	1	-----	0	0	0	1
Manchester	0	0	0	-----	0	0	0	21
Vermont:								
Barre	5	0	0	-----	0	11	0	0
Burlington	0	0	0	-----	0	0	0	0
Massachusetts:								
Boston	6	36	23	8	0	486	80	42
Fall River	7	3	1	-----	0	2	0	4
Springfield	14	3	1	-----	0	0	10	2
Worcester	27	4	1	-----	1	133	3	4
Rhode Island:								
Pawtucket	2	0	0	-----	0	1	0	2
Providence	5	8	5	-----	0	2	2	8
Connecticut:								
Bridgeport	2	4	1	3	2	0	3	4
Hartford		5	-----	-----	-----	-----	-----	-----
New Haven	35	1	0	-----	0	6	10	2

City reports for week ended April 12, 1930—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneu- monia, deaths reported
		Cases, estimated expect- ancy	Cases reported	Cases reported	Deaths reported			
MIDDLE ATLANTIC								
New York:								
Buffalo.....	26	10	12	-----	2	32	24	18
New York.....	292	254	124	32	24	963	207	260
Rochester.....	25	7	0	-----	0	41	4	3
Syracuse.....	40	5	1	-----	0	16	79	6
New Jersey:								
Camden.....	5	8	0	-----	0	2	1	2
Newark.....	63	14	31	10	0	401	33	14
Trenton.....	16	3	5	5	0	22	0	3
Pennsylvania:								
Philadelphia.....	115	65	15	14	12	301	98	55
Pittsburgh.....	40	15	14	1	5	351	18	43
Reading.....	8	2	1	-----	0	2	4	3
Scranton.....	0	3	1	-----	-----	0	0	-----
EAST NORTH CENTRAL								
Ohio:								
Cincinnati.....	27	7	1	-----	-----	25	5	-----
Cleveland.....	140	26	20	10	3	10	39	26
Columbus.....	6	3	2	-----	0	83	5	4
Toledo.....	35	3	1	5	4	138	26	4
Indiana:								
Fort Wayne.....	1	2	0	-----	0	0	0	4
Indianapolis.....	23	4	2	-----	0	15	4	13
South Bend.....	-----	1	-----	-----	-----	-----	-----	-----
Terre Haute.....	5	0	1	-----	0	2	0	2
Illinois:								
Chicago.....	136	90	104	6	5	55	86	77
Springfield.....	8	0	1	-----	0	1	0	0
Michigan:								
Detroit.....	97	43	43	4	1	1,179	88	47
Flint.....	21	3	1	-----	0	70	2	7
Grand Rapids.....	6	1	0	-----	2	0	2	7
Wisconsin:								
Kenosha.....	6	0	0	-----	0	3	1	0
Madison.....	2	0	2	-----	-----	80	0	-----
Milwaukee.....	154	12	6	2	2	7	108	13
Racine.....	0	3	3	1	0	3	0	1
Superior.....	1	0	0	-----	0	4	0	0
WEST NORTH CENTRAL								
Minnesota:								
Duluth.....	10	0	0	-----	0	48	0	0
Minneapolis.....	57	13	2	-----	0	55	57	7
St. Paul.....	39	9	2	-----	0	5	12	11
Iowa:								
Davenport.....	2	0	0	-----	-----	41	3	-----
Des Moines.....	1	1	0	-----	-----	14	0	-----
Sioux City.....	0	1	0	-----	-----	187	11	-----
Waterloo.....	37	0	0	-----	-----	3	0	-----
Missouri:								
Kansas City.....	23	4	1	1	1	4	6	12
St. Joseph.....	0	1	0	-----	0	3	0	6
St. Louis.....	34	37	29	1	2	8	32	-----
North Dakota:								
Fargo.....	3	0	0	-----	-----	0	14	-----
Grand Forks.....	0	0	0	-----	-----	0	0	-----
South Dakota:								
Sioux Falls.....	0	0	0	-----	-----	9	0	-----
Nebraska:								
Omaha.....	14	2	12	-----	0	111	1	7
Kansas:								
Topeka.....	4	0	0	1	0	144	16	1
Wichita.....	14	1	0	-----	0	51	1	5
SOUTH ATLANTIC								
Delaware:								
Wilmington.....	8	2	4	-----	0	3	0	7
Maryland:								
Baltimore.....	188	24	14	16	4	16	13	42
Cumberland.....	1	0	0	1	0	1	0	1
Frederick.....	0	0	0	-----	0	0	0	0
District of Columbia:								
Washington.....	28	11	8	1	0	12	0	25
Virginia:								
Lynchburg.....	4	0	1	-----	0	124	7	2
Norfolk.....	80	1	1	-----	0	5	34	5
Richmond.....	3	2	0	-----	2	8	2	6
Roanoke.....	5	0	0	-----	2	231	2	4

City reports for week ended April 12, 1930—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneu- monia, deaths reported
		Cases, estimated expect- ancy	Cases reported	Cases reported	Deaths reported			
SOUTH ATLANTIC—CON.								
West Virginia:								
Charleston.....	14	0	0	-----	0	10	1	2
Wheeling.....	24	0	0	-----	1	1	0	3
North Carolina:								
Raleigh.....	9	0	1	-----	0	0	0	1
Wilmington.....	5	0	1	-----	1	0	0	0
Winston-Salem.....	18	0	0	1	0	0	15	3
South Carolina:								
Charleston.....	1	0	0	49	0	0	6	2
Columbia.....	2	0	0	-----	0	0	5	3
Georgia:								
Atlanta.....	9	2	5	15	1	32	31	7
Brunswick.....	0	0	0	-----	0	0	1	0
Savannah.....	3	0	5	3	1	2	1	6
Florida:								
Miami.....	5	2	3	-----	0	3	1	0
St. Petersburg.....	-----	0	-----	-----	0	-----	-----	1
Tampa.....	7	1	1	-----	1	93	7	1
EAST SOUTH CENTRAL								
Kentucky:								
Covington.....	0	1	0	-----	0	0	0	3
Tennessee:								
Memphis.....	19	3	0	-----	2	3	17	9
Nashville.....	2	1	1	-----	0	8	0	6
Alabama:								
Birmingham.....	4	1	0	4	3	2	3	10
Mobile.....	0	1	0	-----	2	2	0	3
Montgomery.....	4	0	0	1	-----	40	0	-----
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith.....	0	0	5	-----	-----	42	0	-----
Little Rock.....	8	0	0	-----	0	7	1	2
Louisiana:								
New Orleans.....	0	8	17	6	4	22	0	15
Shreveport.....	17	0	0	-----	0	10	7	5
Oklahoma:								
Oklahoma City.....	6	1	1	10	1	36	1	5
Tulsa.....	21	1	1	-----	-----	200	1	-----
Texas:								
Dallas.....	18	4	6	2	0	125	3	11
Fort Worth.....	7	1	3	-----	0	7	1	4
Galveston.....	0	0	1	-----	0	0	0	1
Houston.....	5	3	11	-----	1	0	2	12
San Antonio.....	5	3	4	-----	2	1	0	5
MOUNTAIN								
Montana:								
Billings.....	0	0	0	-----	1	0	5	3
Great Falls.....	5	0	0	-----	0	1	19	3
Helena.....	0	0	0	-----	0	0	2	1
Missoula.....	0	0	0	-----	0	2	1	-----
Idaho:								
Boise.....	0	1	0	-----	0	0	0	0
Colorado:								
Denver.....	52	8	8	-----	0	657	31	9
Pueblo.....	11	1	0	1	0	6	79	2
New Mexico:								
Albuquerque.....	0	0	0	-----	1	33	10	1
Arizona:								
Phoenix.....	4	0	0	-----	0	20	1	4
Utah:								
Salt Lake City.....	11	3	1	-----	2	204	2	3
Nevada:								
Reno.....	0	0	0	-----	0	1	0	0
PACIFIC								
Washington:								
Seattle.....	32	3	0	-----	-----	171	102	-----
Spokane.....	20	2	0	4	-----	0	0	-----
Tacoma.....	7	1	1	-----	0	46	0	3
Oregon:								
Portland.....	12	8	2	-----	0	25	19	3
Salem.....	1	0	0	-----	-----	0	8	-----
California:								
Los Angeles.....	93	37	21	13	3	483	71	18
Sacramento.....	6	2	0	-----	0	16	22	4
San Francisco.....	41	18	3	-----	2	301	80	4

City reports for week ended April 12, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culosis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
NEW ENGLAND											
Maine:											
Portland.....	3	2	0	0	0	1	1	0	0	2	31
New Hampshire:											
Concord.....	2	0	0	0	0	0	0	0	0	0	11
Manchester.....	3	0	0	0	0	0	0	0	0	0	27
Vermont:											
Barre.....	0	0	0	1	0	1	0	0	0	0	1
Burlington.....	0	0	0	0	0	0	0	0	0	0	6
Massachusetts:											
Boston.....	74	86	0	0	0	8	1	0	1	57	247
Fall River.....	5	3	0	0	0	3	1	0	0	5	34
Springfield.....	8	7	0	0	0	1	0	0	0	21	41
Worcester.....	9	5	0	0	0	2	1	0	0	19	60
Rhode Island:											
Pawtucket.....	1	2	0	0	0	0	0	0	0	7	—
Providence.....	11	12	0	0	0	4	0	0	0	30	84
Connecticut:											
Bridgeport.....	12	16	0	0	0	2	0	0	0	0	31
Hartford.....	5	—	0	—	—	—	0	—	—	—	—
New Haven.....	10	7	0	0	0	1	0	0	0	4	28
MIDDLE ATLANTIC											
New York:											
Buffalo.....	28	32	0	0	0	13	0	0	0	17	150
New York.....	332	319	0	0	0	112	9	3	1	49	1,692
Rochester.....	14	9	0	0	0	4	0	0	1	1	82
Syracuse.....	11	20	0	0	0	1	1	0	0	51	62
New Jersey:											
Camden.....	6	4	0	0	0	1	0	0	1	0	23
Newark.....	33	39	0	0	0	6	1	0	0	41	122
Trenton.....	4	9	0	0	0	2	0	0	0	2	39
Pennsylvania:											
Philadelphia.....	103	149	0	0	0	40	2	0	0	20	511
Pittsburgh.....	29	34	0	0	0	17	1	0	0	31	217
Reading.....	6	4	0	0	0	3	0	0	0	7	31
Scranton.....	2	5	0	0	—	—	0	0	—	1	—
EAST NORTH CENTRAL											
Ohio:											
Cincinnati.....	16	25	1	2	—	—	1	0	—	8	—
Cleveland.....	34	67	0	0	0	16	1	0	0	70	222
Columbus.....	8	12	1	4	0	4	0	0	0	8	86
Toledo.....	12	17	0	10	0	5	0	0	0	3	68
Indiana:											
Fort Wayne.....	5	2	2	12	0	1	0	0	0	3	41
Indianapolis.....	9	18	7	8	0	8	0	0	0	4	—
South Bend.....	4	—	1	—	—	—	0	—	—	—	—
Terre Haute.....	2	2	1	0	0	1	0	0	0	0	22
Illinois:											
Chicago.....	122	325	2	4	0	51	1	1	0	61	760
Springfield.....	4	3	1	1	0	1	0	0	0	7	22
Michigan:											
Detroit.....	107	147	1	2	0	32	1	0	1	72	369
Flint.....	10	20	2	2	0	2	0	0	0	7	38
Grand Rapids.....	8	24	0	0	0	1	0	0	0	2	47
Wisconsin:											
Kenosha.....	2	4	1	0	0	0	0	0	0	7	7
Madison.....	3	3	0	1	—	—	0	0	—	20	—
Milwaukee.....	30	29	0	0	0	13	0	0	0	43	124
Racine.....	4	3	0	0	0	1	0	0	0	5	24
Superior.....	3	2	0	1	0	0	0	0	0	0	7
WEST NORTH CENTRAL											
Minnesota:											
Duluth.....	7	2	0	2	0	2	0	1	0	14	29
Minneapolis.....	49	22	3	0	0	4	0	1	0	11	63
St. Paul.....	29	15	1	0	0	6	0	0	0	13	61

City reports for week ended April 12, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culosis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
WEST NORTH CENTRAL—contd.											
Iowa:											
Davenport.....	2	1	1	23	-----	-----	0	0	-----	4	-----
Des Moines.....	7	25	2	14	-----	-----	0	0	-----	0	30
Sioux City.....	1	6	0	2	-----	-----	0	0	-----	4	-----
Waterloo.....	2	1	0	30	-----	-----	0	0	-----	2	-----
Missouri:											
Kansas City.....	18	43	2	1	0	6	0	0	0	27	125
St. Joseph.....	3	8	1	0	0	1	0	0	0	0	37
St. Louis.....	39	65	2	5	0	10	1	0	0	10	252
North Dakota:											
Fargo.....	1	2	0	1	-----	-----	0	0	-----	4	-----
Grand Forks.....	0	1	0	0	-----	-----	0	0	-----	0	-----
South Dakota:											
Sioux Falls.....	1	0	1	3	-----	-----	0	0	-----	0	7
Nebraska:											
Omaha.....	3	16	4	35	0	1	0	0	0	1	56
Kansas:											
Topeka.....	4	3	1	0	0	0	0	0	0	19	9
Wichita.....	4	23	2	1	0	1	0	0	0	7	33
SOUTH ATLANTIC											
Delaware:											
Wilmington.....	5	4	0	0	0	1	0	0	0	2	41
Maryland:											
Baltimore.....	32	97	0	0	0	18	2	4	0	20	249
Cumberland.....	0	0	0	0	0	0	0	0	0	0	5
Frederick.....	1	0	0	0	0	1	0	0	0	0	5
District of Colum- bia:											
Washington.....	25	23	0	0	0	11	1	0	0	13	155
Virginia:											
Lynchburg.....	0	0	0	0	0	1	0	0	0	13	14
Norfolk.....	2	1	1	0	0	0	0	2	0	2	-----
Richmond.....	2	5	0	0	0	3	0	1	0	0	61
Roanoke.....	1	2	0	0	0	1	0	0	0	5	24
West Virginia:											
Charleston.....	0	0	1	0	0	0	0	3	0	13	20
Wheeling.....	2	4	0	0	0	2	0	0	0	9	22
North Carolina:											
Raleigh.....	0	0	0	3	0	3	0	0	0	0	11
Wilmington.....	0	0	0	0	0	1	0	0	0	25	14
Winston-Salem.....	0	0	1	2	0	1	0	0	0	3	25
South Carolina:											
Charleston.....	0	0	0	0	0	2	0	1	0	0	20
Columbia.....	0	0	0	0	0	0	1	0	0	14	12
Georgia:											
Atlanta.....	4	17	3	0	0	8	0	0	0	3	98
Brunswick.....	0	0	0	0	0	0	0	1	0	0	1
Savannah.....	0	1	1	0	0	3	0	0	0	0	34
Florida:											
Miami.....	0	3	0	0	0	1	1	0	0	0	24
St. Petersburg.....	0	-----	0	0	0	0	0	-----	0	-----	14
Tampa.....	1	1	0	0	0	1	0	1	0	0	18
EAST SOUTH CENTRAL											
Kentucky:											
Covington.....	2	2	1	0	0	1	0	0	0	0	19
Tennessee:											
Memphis.....	8	15	1	0	0	5	1	3	0	3	79
Nashville.....	3	5	1	2	0	1	1	0	0	1	44
Alabama:											
Birmingham.....	2	0	4	0	0	4	0	0	0	11	72
Mobile.....	0	0	1	0	0	0	0	0	0	0	20
Montgomery.....	1	0	0	0	-----	-----	1	0	-----	1	-----
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith.....	0	0	0	0	-----	-----	1	0	-----	1	-----
Little Rock.....	1	2	0	0	0	1	0	0	0	0	-----

City reports for week ended April 12, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, estimated expect- ancy	Cases re- ported	Cases, estimated expect- ancy	Cases re- ported	Deaths re- ported		Cases, estimated expect- ancy	Cases re- ported	Deaths re- ported		
WEST SOUTH CENTRAL—continued											
Louisiana:											
New Orleans.....	7	16	0	0	0	18	0	1	0	3	181
Shreveport.....	0	0	1	1	0	1	0	0	0	0	35
Oklahoma:											
Oklahoma City.....	2	19	3	21	0	1	1	0	0	0	39
Tulsa.....	2	2	2	3			0	0		17	
Texas:											
Dallas.....	4	5	2	1	0	2	0	0	0	2	64
Forth Worth.....	2	2	5	2	0	3	0	0	0	0	25
Galveston.....	0	0	0	0	0	0	0	0	0	0	12
Houston.....	1	4	1	6	0	5	0	1	0	0	82
San Antonio.....	1	4	0	0	0	6	0	0	0	0	56
MOUNTAIN											
Montana:											
Billings.....	0	0	0	0	0	0	0	0	0	0	12
Great Falls.....	1	16	0	0	0	0	0	5	1	0	8
Helena.....	0	0	1	0	0	0	0	0	0	0	5
Missoula.....	0	1	0	5	0	0	0	0	0	0	1
Idaho:											
Boise.....	0	0	0	1	1	0	0	0	0	0	7
Colorado:											
Denver.....	12	17	0	0	0	15	0	0	0	47	107
Pueblo.....	2	0	0	0	0	0	0	0	0	0	8
New Mexico:											
Albuquerque.....	0	0	0	0	0	2	0	0	0	0	15
Arizona:											
Phoenix.....	0	1	0	0	0	6	0	0	0	0	28
Utah:											
Salt Lake City.....	2	4	1	0	0	1	0	0	0	30	47
Nevada:											
Reno.....	0	0	0	1	0	1	0	0	0	0	3
PACIFIC											
Washington:											
Seattle.....	7	21	3	9			0	1		15	
Spokane.....	6	0	7	8			0	0		16	
Tacoma.....	2	5	4	6	0	0	0	0	0	10	31
Oregon:											
Portland.....	5	2	10	9	0	3	1	0	0	18	70
Salem.....	0	0	1	0	0	0	0	0	0	5	
California:											
Los Angeles.....	29	43	3	14	0	36	1	1	0	24	282
Sacramento.....	1	7	0	4	0	3	0	0	0	1	22
San Francisco.....	19	31	1	3	0	14	1	0	0	1	142

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Polio-myelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Maine:									
Portland.....	0	0	1	2	0	0	0	0	0
Massachusetts:									
Boston.....	3	1	0	0	0	0	0	1	0
MIDDLE ATLANTIC									
New York:									
Buffalo.....	0	1	0	1	0	0	0	0	0
New York City.....	24	10	2	1	0	0	1	1	0
Syracuse.....	1	0	0	0	0	0	0	0	0
New Jersey:									
Newark.....	1	0	2	0	0	0	0	0	0
Pennsylvania:									
Philadelphia.....	4	1	1	1	1	1	0	0	0
Pittsburgh.....	8	6	0	0	0	0	0	0	0
Scranton.....	0	0	1	0	0	0	0	0	0

¹ Typhus fever, 3 cases: 1 case at New York City, 1 case at Wilmington, N. C., and 1 case at Tampa, Fla.

City reports for week ended April 12, 1930—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
EAST NORTH CENTRAL									
Ohio:									
Cleveland.....	2	1	0	0	0	0	0	0	0
Columbus.....	0	0	1	1	0	0	0	0	0
Indiana:									
Fort Wayne.....	1	0	0	0	0	0	0	0	0
Indianapolis.....	4	0	0	0	0	0	0	0	0
Illinois:									
Chicago.....	14	3	1	1	0	0	1	0	0
Michigan:									
Detroit.....	20	10	1	0	0	0	0	1	0
Flint.....	1	1	0	0	0	0	0	0	0
Wisconsin:									
Milwaukee.....	1	0	0	0	0	0	0	0	0
Racine.....	1	0	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
Minneapolis.....	1	0	0	0	0	0	0	0	0
Iowa:									
Waterloo.....	7	2	0	0	0	0	0	0	0
Missouri:									
Kansas City.....	0	7	0	0	0	0	0	0	0
St. Louis.....	10	5	0	0	0	0	0	0	0
SOUTH ATLANTIC									
District of Columbia									
Washington.....	1	0	0	0	0	0	0	0	0
Virginia:									
Richmond.....	0	0	0	1	0	0	0	0	0
Roanoke.....	0	0	0	0	0	1	0	0	0
West Virginia									
Wheeling.....	1	0	0	0	0	0	0	0	0
North Carolina:									
Winston-Salem.....	0	0	0	0	0	0	0	1	1
South Carolina:									
Charleston.....	0	0	0	0	0	1	0	0	0
Georgia:									
Atlanta.....	0	2	0	0	0	0	0	0	0
Savannah.....	0	0	0	0	0	1	0	0	0
Florida:									
Miami.....	0	0	0	0	0	1	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis.....	22	5	0	0	0	0	0	0	0
Nashville.....	0	1	0	0	0	0	0	0	0
Alabama:									
Birmingham.....	1	1	0	0	1	0	0	0	0
Mobile.....	3	3	0	0	1	0	0	0	0
Montgomery.....	0	0	0	0	1	0	0	0	0
WEST SOUTH CENTRAL									
Louisiana:									
New Orleans.....	3	1	0	0	2	2	0	0	0
Oklahoma:									
Tulsa.....	1	0	0	0	0	0	0	0	0
Texas:									
Fort Worth.....	0	0	0	0	0	1	0	0	0
Houston.....	0	0	0	0	0	1	0	0	0
MOUNTAIN									
Montana:									
Billings.....	1	1	0	0	0	0	0	0	0
Helena.....	1	0	0	0	0	0	0	0	0
Colorado:									
Denver.....	1	1	0	0	0	0	0	0	0
Arizona:									
Phoenix.....	0	1	0	0	0	0	0	0	0
Utah:									
Salt Lake City.....	11	8	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle.....	2	0	0	0	0	0	0	0	0
Oregon:									
Portland.....	0	0	0	1	0	0	0	0	0
California:									
Los Angeles.....	4	1	0	0	0	0	0	2	0
Sacramento.....	1	0	0	0	0	0	0	0	0

¹ Typhus fever: 3 cases; 1 case at New York City, 1 case at Wilmington, N. C., and 1 case at Tampa, Fla.

The following table gives the rates per 100,000 population for 98 cities for the 5-week period ended April 12, 1930, compared with those for a like period ended April 13, 1929. The population figures used in computing the rates are approximate estimates, authoritative figures for many of the cities not being available. The 98 cities reporting cases have an estimated aggregate population of more than 32,000,000. The 91 cities reporting deaths have more than 30,500,000 estimated population.

Summary of weekly reports from cities, March 9 to April 12, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929¹

DIPHTHERIA CASE RATES

	Week ended—									
	Mar. 15, 1930	Mar. 16, 1929	Mar. 22, 1930	Mar. 23, 1929	Mar. 29, 1930	Mar. 30, 1929	Apr. 5, 1930	Apr. 6, 1929	Apr. 12, 1930	Apr. 13, 1929
98 cities.....	104	126	100	135	84	128	² 81	131	³ 96	124
New England.....	84	135	60	119	51	101	⁴ 68	135	⁵ 79	117
Middle Atlantic.....	90	159	102	180	84	187	78	190	97	160
East North Central.....	135	121	133	142	115	119	108	125	⁶ 116	120
West North Central.....	108	152	72	131	63	139	51	75	87	83
South Atlantic.....	95	84	82	60	64	66	59	82	73	71
East South Central.....	27	55	40	41	54	41	34	27	7	75
West South Central.....	120	95	146	118	134	118	⁷ 161	114	164	122
Mountain.....	26	44	86	35	43	44	⁸ 27	44	77	61
Pacific.....	73	65	52	68	40	29	59	58	59	66

MEASLES CASE RATES

98 cities.....	660	679	793	757	899	716	² 1,041	839	³ 1,232	824
New England.....	680	617	944	563	1,023	467	⁴ 1,443	521	⁵ 1,550	638
Middle Atlantic.....	418	135	568	179	644	154	832	174	1,019	160
East North Central.....	476	1,387	543	1,595	661	1,592	807	1,836	⁶ 922	1,946
West North Central.....	765	1,967	973	1,882	890	1,784	842	1,963	1,174	1,657
South Atlantic.....	439	380	564	451	637	414	793	650	978	464
East South Central.....	715	41	1,457	137	1,093	89	594	89	371	130
West South Central.....	661	141	587	190	841	95	⁷ 936	248	773	232
Mountain.....	2,386	636	2,815	766	3,424	409	⁸ 4,883	618	7,475	192
Pacific.....	2,194	133	2,100	239	2,549	232	2,343	273	2,402	319

SCARLET FEVER CASE RATES

98 cities.....	344	324	323	345	315	318	² 308	290	³ 327	270
New England.....	390	368	341	364	332	391	⁴ 418	341	⁵ 336	317
Middle Atlantic.....	345	266	310	308	315	264	308	244	296	224
East North Central.....	466	418	422	495	386	453	381	426	⁶ 432	372
West North Central.....	302	368	328	292	300	310	286	275	391	242
South Atlantic.....	192	146	262	150	249	167	253	94	282	122
East South Central.....	108	232	202	308	263	267	182	212	148	185
West South Central.....	179	366	116	270	120	274	⁷ 188	270	116	229
Mountain.....	369	157	343	113	446	78	⁸ 155	104	326	165
Pacific.....	267	444	230	367	239	311	196	314	253	374

¹ The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1930, and 1929, respectively.

² New Haven, Conn., San Antonio, Tex., and Great Falls, Mont., not included.

³ Hartford, Conn., and South Bend, Ind., not included.

⁴ New Haven, Conn., not included.

⁵ Hartford, Conn., not included.

⁶ South Bend, Ind., not included.

⁷ San Antonio, Tex., not included.

⁸ Great Falls, Mont., not included.

Summary of weekly reports from cities, March 9 to April 12, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929—Continued

SMALLPOX CASE RATES

	Week ended—									
	Mar. 15, 1930	Mar. 16, 1929	Mar. 22, 1930	Mar. 23, 1929	Mar. 29, 1930	Mar. 30, 1929	Apr. 5, 1930	Apr. 6, 1929	Apr. 12, 1930	Apr. 13, 1929
98 cities.....	25	12	25	11	23	16	¹ 24	11	² 29	12
New England.....	0	4	0	7	2	11	⁴ 0	2	⁵ 2	2
Middle Atlantic.....	0	0	0	0	0	0	0	0	0	0
East North Central.....	30	20	20	12	18	17	30	15	⁶ 23	20
West North Central.....	68	31	95	12	97	25	85	17	146	8
South Atlantic.....	4	6	2	0	7	13	2	4	9	4
East South Central.....	27	7	7	7	20	41	0	7	13	7
West South Central.....	26	42	52	99	49	91	⁷ 22	76	30	76
Mountain.....	9	17	34	44	26	44	⁸ 109	26	60	78
Pacific.....	135	22	120	14	83	22	83	17	104	10

TYPHOID FEVER CASE RATES

	6	5	8	7	8	10	¹ 5	5	² 5	12
98 cities.....										
New England.....	4	2	0	7	2	4	⁴ 5	4	⁵ 0	9
Middle Atlantic.....	5	4	7	6	15	5	3	2	1	7
East North Central.....	1	2	1	4	3	17	2	7	⁶ 1	11
West North Central.....	4	2	9	6	4	8	2	4	4	25
South Atlantic.....	11	7	13	6	5	13	4	4	20	13
East South Central.....	27	7	94	27	34	27	34	7	20	21
West South Central.....	7	11	11	8	7	19	⁷ 13	8	7	42
Mountain.....	51	26	17	9	0	0	⁸ 18	0	43	0
Pacific.....	12	10	12	19	2	0	7	7	5	7

INFLUENZA DEATH RATES

	14	33	16	27	14	18	¹ 13	20	² 17	15
91 cities.....										
New England.....	2	25	2	4	9	4	⁴ 7	11	⁵ 7	7
Middle Atlantic.....	12	31	14	23	11	12	15	16	21	14
East North Central.....	9	23	9	20	11	16	10	18	⁶ 9	15
West North Central.....	6	27	12	30	6	18	9	27	⁷ 11	6
South Atlantic.....	16	37	26	30	15	22	7	17	24	17
East South Central.....	96	119	88	90	110	90	44	75	52	30
West South Central.....	46	102	27	74	34	35	⁸ 32	47	27	31
Mountain.....	17	35	60	78	51	52	⁹ 27	44	26	17
Pacific.....	3	16	9	31	3	16	0	19	15	22

PNEUMONIA DEATH RATES

	164	184	165	168	167	157	¹ 164	149	² 170	139
91 cities.....										
New England.....	155	200	199	186	202	171	⁴ 164	101	⁵ 173	126
Middle Atlantic.....	204	197	168	190	197	180	194	178	195	161
East North Central.....	123	155	150	111	118	132	146	135	⁶ 134	126
West North Central.....	142	180	121	189	133	150	115	147	⁷ 147	114
South Atlantic.....	179	198	203	185	194	150	179	144	211	165
East South Central.....	265	201	214	172	258	172	177	142	226	164
West South Central.....	153	250	214	78	176	125	⁸ 157	137	195	90
Mountain.....	120	252	189	165	172	131	⁹ 191	122	180	113
Pacific.....	80	135	95	163	114	151	77	120	89	94

¹ New Haven, Conn.; San Antonio, Tex.; and Great Falls, Mont., not included.

² Hartford, Conn., and South Bend, Ind., not included.

³ New Haven, Conn., not included.

⁴ Hartford, Conn., not included.

⁵ South Bend, Ind., not included.

⁶ San Antonio, Tex., not included.

⁷ Great Falls, Mont., not included.

⁸ Hartford, Conn.; Cincinnati, Ohio; South Bend, Ind.; and Fargo, N. Dak., not included.

⁹ Cincinnati, Ohio; and South Bend, Ind., not included.

¹⁰ Fargo, N. Dak., not included.

FOREIGN AND INSULAR

BRAZIL

Mage—Yellow fever—April 22, 1930.—On April 22, 1930, two cases of yellow fever were reported at Mage, Brazil. Mage is on the Leopoldina Railway, between Rio de Janeiro and Nictheroy.

CANADA

Provinces—Communicable diseases—Week ended April 5, 1930.—The Department of Pensions and National Health reports cases of certain communicable diseases in Canada for the week ended April 5, 1930, as follows:

Provinces	Cerebro-spinal fever	Influenza	Lethargic encephalitis	Polio-myelitis	Small-pox	Typhoid fever
Prince Edward Island ¹.....	.....	.....	.....	.....	.....	.....
Nova Scotia.....	.....	4	.....	.....	.....	.....
New Brunswick.....	.....	.....	.....	.....	.....	1
Quebec.....	4	.....	.....	1	.....	7
Ontario.....	1	26	.....	.....	9	1
Manitoba.....	.....	.....	2	.....	.....	1
Saskatchewan.....	.....	.....	.....	.....	12	.....
Alberta.....	.....	.....	.....	.....	1	.....
British Columbia.....	.....	.....	.....	.....	9	.....
Total.....	5	30	2	1	31	10

¹ None of the diseases included in the table were reported during the week.

Ontario Province—Communicable diseases (comparative)—Five weeks ended March 29, 1930.—The following table shows the number of cases of certain communicable diseases, with deaths therefrom, reported in the Province of Ontario, Canada, for the five weeks ended March 29, 1930, as compared with the corresponding period of 1929:

(1040)

Five weeks ended March 30, 1929, and March 29, 1930

Disease	1929		1930	
	Cases	Deaths	Cases	Deaths
Cerebrospinal meningitis.....	11	2	10	4
Chancroid.....	3	2	7	1
Chicken pox.....	775	1	1,189	—
Diphtheria.....	261	25	246	6
Dysentery.....	—	—	—	1
Conjunctivitis.....	3	—	—	—
Erysipelas.....	—	—	1	—
German measles.....	22	—	621	—
Golter.....	—	—	1	1
Gonorrhea.....	107	—	203	—
Influenza.....	154	49	74	7
Lethargic encephalitis.....	3	—	5	4
Measles.....	4,554	10	4,412	1
Mumps.....	708	—	230	—
Paratyphoid fever.....	1	—	—	—
Pneumonia.....	—	261	—	230
Poliomyelitis.....	—	1	—	—
Puerperal fever.....	1	4	3	3
Scarlet fever.....	646	7	1,432	5
Septic sore throat.....	8	—	28	—
Smallpox ¹	69	—	149	—
Syphilis.....	216	2	184	—
Tuberculosis.....	127	44	133	84
Typhoid fever.....	30	4	55	2
Undulant fever.....	1	—	7	—
Whooping cough.....	466	1	309	1

¹ Cases of smallpox for this period were distributed as follows: Ottawa, 43, Sudbury, 25; Burwash, 23; Napean, 15, Chisholm, 15, Neabing, 5, Plantagenet, 4, Welland, Cheslev, and Blezard, 3 each. One case in each of the following. Himsworth, Cornwall, North Bay, Trenton, Bruce, York Township, McMurich, Cornwall Tp., Comiston, and Magnetawan

Quebec Province—Communicable diseases—Week ended April 5, 1930.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended April 5, 1930, as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis.....	4	Mumps.....	119
Chicken pox.....	112	Poliomyelitis.....	1
Diphtheria.....	30	Puerperal fever.....	2
Erysipelas.....	12	Scarlet fever.....	105
German measles.....	54	Tuberculosis.....	62
Influenza.....	4	Typhoid fever.....	7
Measles.....	148	Whooping cough.....	51

CHINA

Meningitis.—During the week ended March 29, 1930, 29 cases of meningitis were reported at Shanghai, China. Two cases were reported at Canton, and 1 case at Swatow during the same week.

During the week ended April 5, 1930, 3 cases of meningitis with 1 death were reported at Canton, China. One case was reported at Hong Kong during the two weeks ended April 12.

CZECHOSLOVAKIA

Communicable diseases—February, 1930.—During the month of February, 1930, certain communicable diseases were reported in Czechoslovakia, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax.....	2	—	Puerperal fever.....	53	24
Cerebrospinal meningitis.....	16	4	Scarlet fever.....	1,627	38
Diphtheria.....	1,889	149	Trachoma.....	214	—
Dysentery.....	5	—	Typhoid fever.....	559	34
Malaria.....	2	—	Typhus fever.....	2	—
Paratyphoid fever.....	1	—			

DENMARK

Communicable diseases—February, 1930.—During the month of February, 1930, cases of certain communicable diseases were reported in Denmark as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis.....	9	Paratyphoid fever.....	6
Chicken pox.....	92	Polio-myelitis.....	2
Diphtheria and croup.....	505	Psittacosis.....	5
Erysipelas.....	256	Puerperal fever.....	18
German measles.....	20	Scabies.....	883
Influenza.....	5,806	Scarlet fever.....	126
Jaundice.....	196	Tetanus.....	7
Lethargic encephalitis.....	18	Typhoid fever.....	6
Measles.....	1,882	Undulant fever.....	41
Mumps.....	2,451	Whooping cough.....	1,383

¹ Reported from the State Serum Institute

VIRGIN ISLANDS

Communicable diseases—March, 1930.—During the month of March, 1930, cases of certain communicable diseases were reported in the Virgin Islands as follows:

St. Thomas and St. John:	Cases	St. Thomas and St. John—Contd	Cases
Chancroid.....	1	Tuberculosis.....	2
Gonorrhea.....	1	Uncinariasis.....	2
Malaria.....	1	St. Croix	
Pellagra.....	2	Chicken pox.....	2
Syphilis.....	11		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

CHOLERA—Continued

[C indicates cases; D, deaths; P, present¹]

Place	Oct. 20- Nov. 18, 1929	Nov. 19- Dec. 14, 1929	Dec. 15, 1929- Jan. 14, 1930	Week ended—											
				January, 1930				February, 1930				March, 1930			
				18	25	1	8	15	22	1	8	15	22	29	April, 1930 5 12
Siam.....			7 11 2			1		1	3			3			
Bangkok.....	C		3 2						1			3			
Nagara Pathom.....	D		5 9 2			1		1	1			3	1		1
On vessel:			1 1									1	1		1
S. at Suva, Fiji Islands.....	C									1					
S. S. Sutley, at Batavia, from Calcutta.....	C								1						
Place	Septem- ber, 1929	October, 1929	Novem- ber, 1929	December, 1929			January, 1930			February, 1930			February, 1930		
				1-10	11-20	21-31	1-10	11-20	21-31	1-10	11-20	21-31	1-10	11-20	21-31
Indo-China (French) (see also table above):															
Annam.....	C	1	2											2	2
Cambodia.....	C	38	291											76	41
Cochin-China.....	C	48	3											110	64
Laos.....	C	12	13											39	39

¹ Reports incomplete.

PLAGUE

[C indicates cases; D, deaths; P, present]

Place	Oct. 20- Nov. 16, 1929	Nov. 17- Dec. 14, 1929	Dec. 15, 1929- Jan. 11, 1930	Week ended—											
				January, 1930			February, 1930			March, 1930			April, 1930		
				18	25	1	8	15	22	1	8	15	22	29	5
Argentina:															
Andalgala, ¹															
Rosario.....	2						P								
Plague-infected rats	3														
Santa Fe.....	1					6									
Tucuman.....															
Villa Lia.....										2					
Azores: Ponta Delgada.....															
Belgian Congo: Djugu.....			P												
Brazil:		2													
Rio de Janeiro.....						1									
Sao Paulo, ²						1									
British East Africa (see also table below): Uganda.....	336	281	127	35	25	22									
Ceylon:	310	262	112	29	21	20									
Colombo.....		5	2	3			1	2			1		1	1	2
Plague-infected rats.....		4	1	3			1	2			1		1	1	2
Chile: Antofagasta.....		1		1			1	1			1		2		
Dutch East Indies:															
Batavia and West Java.....	266	340	266	35	43	46	43	31	38	38	46				
Plague-infected rats.....	262	335	280	35	43	44	42	30	37	37	46				
Celebes—Makassar.....	1	8		2	1	1			2	1			2		1
Plague-infected rodents		1		1											
East Java and Madura.....		41	4												
Java and Madura.....	43	29	2												
Surabaya.....	475	537	458	71	92	80	74	64	60	105	58				
Surabaya.....		4													

¹ On Mar. 11, 3 deaths from bubonic plague were reported in Andalgala, Catamarca Province, Argentina, since Feb. 5, 1930.

² 21 cases of plague with 8 deaths were reported Jan. 29, 1930, in the State of Sao Paulo, Brazil. 15 of these cases were in the city of Sao Paulo.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE—Continued

[C indicates cases, D, deaths, P, present]

Place	Octo- ber, 1929	No. ven- er- ber, 1929	De- cem- ber, 1929	Janu- ary, 1930	Feb- ruary, 1930	March, 1930	Place	Octo- ber, 1929	No. ven- er- ber, 1929	De- cem- ber, 1929	Janu- ary, 1930	Feb- ruary, 1930	March, 1930
British East Africa (see also table above).							Madagascar (see also table above)—Continued						
Kenya.....	C 146	157	54	34			Noromanga Province.....	C 27	4	12			
Uganda.....	C 84	179	216	87			Tamrlave Province.....	C 27	3	12			
Ecuador: Guayaquil.....	C 311	164	199	75			Tamrlave Province.....	C 5		2			
Plague-infected rats.....	C 12	14	17	8	2		Tamrlave Province.....	C 141	163	97			
Greece (see also table above).....	C 4	3	6	4	2		Peru.....	C 132	93	93			
Indo-China (see also table above).....	C 5	9	13	4	2		Sengal.....	C 1					
Madagascar (see also table above).....	C 2	1					Senegal.....	C 45	23	5			13
Ambositra Province.....	C 203	182	10	10	27		Dakar.....	C 13	17	2			6
Antsirabe Province.....	C 193	163		282			Longa.....	C 3	2	8			
Itasy Province.....	C 2	42	111	258			Thies.....	C 41	5	1			
Marinarivo.....	C 17	5	16				Tivouane.....	C 24	1		3		3
	C 17	5	16					C 3					3
	C 10	19	17					C 41	8		1		
	C 12	5	3					C 21	4				
	C 11	5	3										

! Incomplete reports.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

C indicates cases, D, deaths; P, present

Place	Oct. 20- Nov. 16, 1929	Nov. 17- Dec. 14, 1929	Dec. 15, 1929- Jan. 11, 1930	Week ended—												
				January, 1930			February, 1930			March, 1930			April, 1930			
				18	25	1	8	15	22	1	8	15	22	29	5	12
Canada—Continued.																
Quebec.....	22	10	3	4	1	6										
Montreal.....																
Saskatchewan.....	11	40	61	12	33	19	22	2	64		10	9	11	15	12	
Regina.....			31													
Saskatoon.....	13															
Ceylon:																
Angoda, Western Province.....																
Colombo.....																
China:																
Canton.....		4	5	4	1		2	4	4	1	2	1	1	4		
Chungking.....																
Foochow.....	P	P	P	P	P	P	P	P	P	P	P	P	P	P		1
Hong Kong.....	15	62	102	23	19	37	37	18	18	16	10	12	10	5	11	20
Manchuria—	13	53	73	28	7	37	37	15	15	11	10	6	10	4	5	21
Harbin.....	1	2	1	1	1	3	2				1					
Kwangtung—Dauren.....	1	1	1	1	1		P	P								
Nanking.....	P	P	P	P	P	P	P	P								
Shanghai.....																
Foreigners only.....	4	5	7	2	1	1	1	1	3		2	1	4	1	3	
Including natives.....	1	2	6	5	1	1	2	1	3	2	1	4	3	2		
Swatow.....																
Tientsin.....	1	4	2		1				1							
Chosen (see table below).																
Colombia:																
Barranquilla.....			1					100	1	1	1					
Buenaventura.....		56	13					1				1	1	1		
Costa Rica: San Jose ¹	50	1														7
Curacao (alastrium).....												10	3	10		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued
SMALLPOX—Continued

Place	Sep-tember, 1929	Octo-ber, 1929	Novem-ber, 1929	December, 1929			January, 1930			February, 1930			March, 1930		
				1-10	11-20	21-31	1-10	11-20	21-31	1-10	11-20	21-28	1-10	11-20	21-31
Belgian Congo.....	725		42	41	33										
Dahomey.....	19		2	4											
Indo-China (see also table above).....		4	19	19											
Ivory Coast.....	64	128	245		142		135	140	184	148	286				
Sierra Leone.....															
Sudan (French).....	2		P		17			4	225	12	P	201		7	409
Syria: Beirut.....	37	28	60	10	9	6	18	6	46	4	7	7	4	238	8
		1	6											5	5

Place	Oc-to-ber, 1929	De-cem-ber, 1929	Jan-uary, 1930	Feb-ruary, 1930	March, 1930	Place			Oc-to-ber, 1929	No-ven-ber, 1929	De-cem-ber, 1929	Jan-uary, 1930	Feb-ruary, 1930	March
Bolivia: La Paz.....	120	22				Nigeria.....			233	228	283			
British East Africa (see also table above):.....						Persia.....			47	45	70			
Kenya.....		278	12	12	6	Turkey.....			57	37	P			
Chosen.....		2	1	4					188	136	883	215	114	
Mexico: Durango (see also table above).....	2	4	12	6	5				100	12	457	66	42	
Morocco.....	12	41	29	74					29					

TYPHUS FEVER

Place		Week ended—													
		Sept.		Oct.		Nov.		Dec.		Jan., 1930		Feb., 1930		March, 1930	
		22-23, 1929	24-25, 1929	1-2, 1930	3-4, 1930	5-6, 1930	7-8, 1930	9-10, 1930	11-12, 1930	13-14, 1930	15-16, 1930	17-18, 1930	19-20, 1930	21-22, 1930	23-24, 1930
Algeria:															Apr. 5, 1930
Algiers:	C	10	2	1	1	14					2	1			
Constantine Department:	C			1	3	2	1	2			1	1	3	2	1
Oran:	C			1	1	1	1	1						2	3
Bolivia, La Paz:	C		13	14											
Brazil, Sao Paulo: ¹	C			9	1	41									
Bulgaria:	D			1	1	2									
Sofia:	D		1								1				
Chile:															
Talcahuano:	D										1				
Valparaiso:	D						1								
China, Tientsin:	C							1							
Chosen (see table below):															
Czechoslovakia (see table below):															
Egypt:															
Alexandria:	C	2													
Assuan:	C														
Beheira Province:	D														
Cairo:	D	16	2	1	1	7	6	8					5	13	
Dakahlieh:	D	4	1											5	
Port Said:	D			1											
Suez:	D					11	2								
Greece (see table below):	C	1	1					1				1			
Iraq, Baghdad Liwa:	C														
Ireland:	D														
Irish Free State:	C														
Northern Ireland—Cookstown:	C														
Lithuania (see table below):	C														
Mexico (see table below):															
Mexico City, including municipalities in Federal district:	C	9	3	5	6	6	3	3							
	D	1	1	2	2	2	2	1						4	2
															3
															2

¹ Press reports show that 10 deaths from typhus fever occurred in Sao Paulo, Brazil, from Nov. 3 to 30, 1929.

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UNITED STATES TREASURY DEPARTMENT

PUBLIC HEALTH REPORTS

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SPECIAL ARTICLES

Methyl Chloride Poisoning by Ingestion with Food
Rural Health Service in the United States, 1926-1930



UNITED STATES
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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. R. C. WILLIAMS, *Chief of Division*

The PUBLIC HEALTH REPORTS are issued weekly by the United States Public Health Service through its Division of Sanitary Reports and Statistics, pursuant to acts of Congress approved February 15, 1893, and August 14, 1912.

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OBSERVATIONS ON THE POSSIBILITY OF METHYL CHLORIDE POISONING BY INGESTION WITH FOOD AND WATER¹

By W. P. YANT, *Supervising Chemist*, H. W. SHOAF, *Assistant Toxicologist*, and J. CHORNYAK, *Medical Officer in charge of pathological laboratory, health laboratory section, Pittsburgh Experiment Station, United States Bureau of Mines*

PURPOSE OF INVESTIGATION

The danger to life from the escape of noxious or inflammable refrigerating media into the air is being given considerable attention in the design and installation of mechanical refrigerating devices. In addition to atmospheric contamination and possible poisoning by inhalation, however, attention must also be given to possible contamination of food and poisoning by ingestion. In the present popular design of these devices the cooling mechanism is situated inside the comparatively air-tight cabinet with the food, and small leaks, which might be insignificant from the viewpoint of appreciable contamination of the external atmosphere, would create high internal concentrations. While there is no definite evidence that food poisoning has occurred or that this type of hazard exists with the refrigerants in current use, nevertheless, the possibility is a matter of concern to manufacturers of refrigerating devices and products, to health officials, and to the public.

The Bureau of Mines, with the cooperation of manufacturers of methyl chloride (CH_3Cl), has been engaged in the study of acute² and chronic³ poisoning resulting from exposure to contaminated air. At the request of the Roessler & Hasslacher Chemical Co., one of the manufacturers, the work has been extended to include poisoning by ingestion. The following is a summarized report of the work completed to date. The study will be resumed in the near future with an attempt to ascertain the lethal dosage of methyl chloride.

¹ This report represents work done under a cooperative agreement between the Bureau of Mines, Department of Commerce, and the Roessler and Hasslacher Chemical Corporation. Published by permission of the Director, U. S. Bureau of Mines.

² Sayers, R. R., Yant, W. P., Thomas, B. G. H., and Berger, L. B., Physiological response attending exposure to vapors of methyl bromide, methyl chloride, ethyl bromide, and ethyl chloride. U. S. Public Health Bulletin No. 185, 1923, 66 pp. Investigation conducted cooperatively with the Dow Chemical Co.

³ To be published. Investigation conducted cooperatively with the Roessler & Hasslacher Chemical Co.

SCOPE AND PLAN OF INVESTIGATION

The scope of the investigation was the study of the response of animals to ingestion of food and water contaminated with methyl chloride. It was originally planned to simulate practical conditions of leakage inside a refrigerator. This plan was changed early in the work, because it was difficult to ascertain the amount of methyl chloride absorbed by the food. The second plan, which was followed for the greater part of the work, was to feed the animals water saturated with methyl chloride at room temperatures. In this manner the loss during feeding was minimized and the dosage could be readily determined; also a larger dosage could be administered than was indicated by analysis of the food.

CONTAMINATED FOOD

TEST APPARATUS AND PROCEDURE

A standard household refrigerating unit was equipped with a saturating device shown in Figure 1. The food container *a* was a 20-liter capacity bell jar fitted with three perforated porcelain disks *b*, taken from large laboratory desiccators. The solid food *c* (meat and cheese) was placed loosely on these perforated plates and the liquid food (milk) was contained in a shallow crystallizing dish *d*. Methyl chloride from an exterior cylinder, *e*, was led through needle valve *f* and copper tubing to the bottom of the saturator, the ground-glass plate *g* being drilled to receive a 1-hole rubber stopper. The methyl chloride escaped through a copper vent tube, *h*, and water seal, *i*, to the atmosphere.

The procedure for exposing the food consisted of cooling the cabinet to approximately 35° F., placing the food in the bell jar, turning the gas into the jar, and allowing the saturating process to continue 15 to 18 hours, at least, and in the case of ground steak as long as 50 to 75 hours. The food was placed loosely on the perforated plates—ground steak in small ½-inch thick patties, sliced pressed ham in thin layers with glass tubing between each to allow gas circulation, butter in small table squares, and the milk in a layer approximately 1-inch deep in a large crystallizing dish. The methyl chloride was passed rather rapidly through the bell jar until analysis at the exit showed the effluent air to contain 90 per cent or more methyl chloride. The flow was then decreased until a slow continuous escape against one-half inch of water positive pressure was maintained through the escape trap. (Fig. 1, *i*.)

The food was taken from the saturator and fed to the animals as quickly as possible. Portions were simultaneously taken and immediately sealed in glass tubes for analysis.

RESULTS OF TESTS

ANALYSIS OF FOOD

Analysis of samples of the food taken after 15 to 18 hours' exposure showed less than 0.5 gram of methyl chloride per 100 grams of food in the milk, steak, and pressed ham, and but a trace in the cheese.

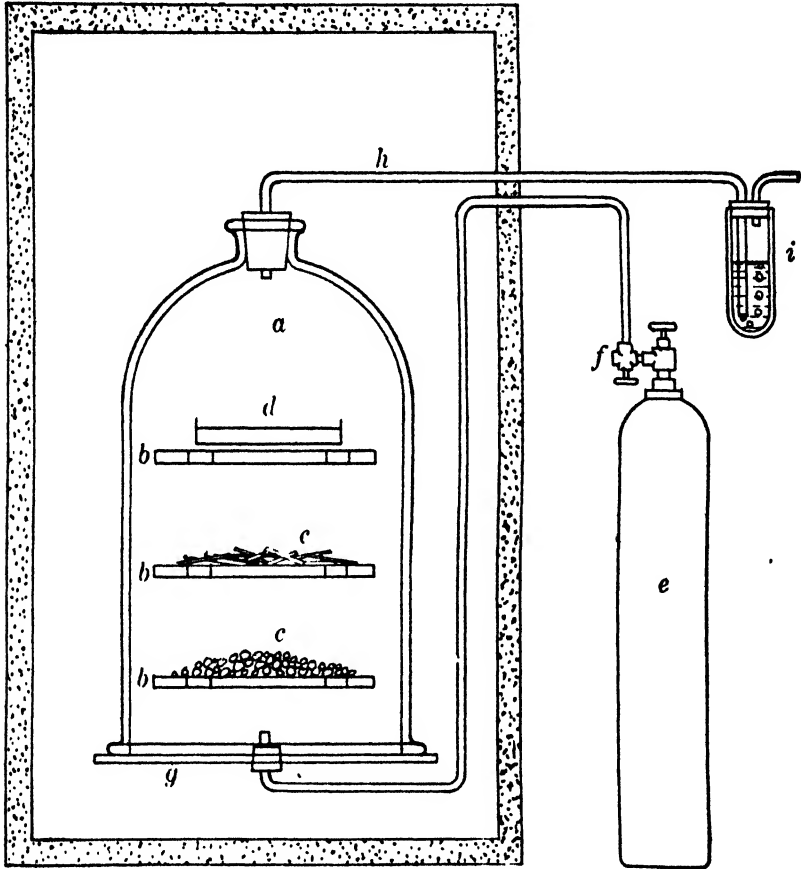


FIGURE 1.—Apparatus for saturating solid food with methyl chloride

RESULTS OF FEEDING TESTS

Although the results of analysis of the samples of food did not indicate the possibility of poisoning by ingestion, one dog was fed milk and the other ground meat, the two foods which analysis indicated to have absorbed the most methyl chloride. Table 1 gives the quantity of food ingested.

TABLE 1.—*Quantity of methyl-chloride contaminated food ingested*

Duration of tests, days	Dog No. 1, grams of ground meat	Dog No. 2, cubic centi- meters of milk
1.-----	532	119
2.-----	590	310
3.-----	356	234
4.-----	715	146

These dogs did not exhibit any symptoms either during the experiment or during a month of observation following.

CONTAMINATED WATER

Methyl chloride is soluble in water to the extent of approximately 346 c. c., or 0.7 gram, of gas per 100 c. c. of water at 68° F. Considering this, the experimental procedure was changed from feeding solid food to feeding water approximately three-quarters to completely saturated at room temperatures. In this manner the dosage was increased over that ingested with solid food.

TEST APPARATUS AND PROCEDURE

The water was saturated by vigorous agitation in an atmosphere of 95 to 100 per cent methyl chloride. This process was conducted in an apparatus consisting of two 15-liter aspirator bottles with their lower openings connected by 36 inches of rubber hose and the top of one closed tight with a cork stopper fitted with a short shell glass tubing outlet closed by means of a short piece of rubber tubing and a screw clamp. The bottle in which the saturating was performed was completely filled with water by raising the companion bottle. The pinch clamp at the top was then closed and connected through a pressure regulator (a T tube with the side arm dipping under water) to a cylinder of compressed methyl chloride. The pinch clamp and cylinder valve were then opened in turn and, immediately following, the companion aspirator bottle was lowered, thus filling the bottle with methyl chloride by water displacement. An escape of a small excess of gas through the side arm of the pressure regulator was always maintained. When all but approximately 4 liters of the water had been displaced, the hose between the aspirator bottles was closed by means of a screw clamp and the companion bottle was disconnected. The saturating bottle was then shaken, gently at first to prevent marked reduced pressure occurring from the rapid solubility of the gas and vigorously later to assure saturation. Throughout the entire procedure the connection between the cylinder of gas and the saturating bottle was kept open and an escape of gas from the pressure

regulator was maintained. The latter supplied the gas as it was absorbed and also assured against air entering the saturator. The saturating procedure was continued until, on shaking the bottle with the methyl-chloride container valve closed, it showed no apparent decrease in pressure at the pressure regulator, thus indicating practically complete saturation. The screw clamp at the top of the saturator was then closed and the saturated water was preserved in an atmosphere of methyl chloride. The water was freshly prepared every three or four days. Most of the preparations were sampled and analyzed for methyl-chloride content.

COMPOSITION AND CHARACTER OF THE METHYL-CHLORIDE SATURATED WATER

Analysis of the water treated with methyl chloride in the manner described showed it to be 75 to 100 per cent saturated at 68° F. These saturation values are based on solubility coefficient of 346 c. c., or 0.7 gram, of methyl chloride per 100 c. c. of water at 68° F. The method of analysis was designed in this laboratory and will be described in a later report.

The freshly prepared water possessed a mild, rather agreeable odor of methyl chloride. The taste, however, was sharp, sweetish, and sickening when first taken into the mouth, followed almost immediately by a burning sensation. Persons would not drink more than a mouthful or two without being warned that the water was unfit for use. The test dogs drank the water only after they had been deprived of other liquids.

FEEDING PROCEDURE FOR WATER

Dogs which were deprived of liquid food and fresh water were given the methyl-chloride-contaminated water twice daily (morning and evening) in quantities as large as they would drink in a 5-minute interval. To minimize loss of methyl chloride to the air, the water was drawn from the container in 100-c. c. portions and added immediately to the dish from which a particular animal drank. When the thirst was satisfied, the water vessel was removed and the remaining water was measured and discarded. The total quantity ingested was taken as the difference between the sum of the portions added and the quantity remaining after feeding. The other food given the dogs consisted of meat and dog biscuits.

QUANTITY OF METHYL CHLORIDE INGESTED

Table 2 gives the average daily quantity of methyl chloride ingested by two dogs during the 171-day period of the tests. The dogs were not given contaminated water on Sundays. Also, on a number of occasions they refused the contaminated water.

TABLE 2.—Quantity of methyl chloride ingested with water

Dog No.	Days on which CH_3Cl was ingested	Average consumption of water, cubic centimeters per day	Average amount of CH_3Cl ingested, grams per day
11.....	116	175	1.04
12.....	115	180	1.07

The variations from the average amounts ingested as given in Table 2 ranged from refusal to drink on a number of occasions to a maximum consumption of 400 c. c. of water, or 2.8 grams of CH_3Cl per day.

RESULTS OF TESTS

SYMPTOMS

The dogs exhibited no unnatural symptoms during the entire period of the test. They were lively and had good appetites. One hundred and five days after the test started, a litter of three apparently normal pups were born to dog No. 11. They were sired by dog No. 12. These pups remained on test with their mother until weaning time, and exhibited no unnatural symptoms.

Figure 2 shows weight curves for the test dogs and pups. A moderate decrease in weight occurred during the first eight weeks of the test. Following this, dog No. 12 recovered his normal weight and maintained it throughout the remaining four months. The normal weight curve of dog No. 11 is obviously obscured by the marked increase in weight during gestation, followed by a loss when the pups were born and during the period before weaning. Following this, however, there was a recovery to practically normal at the termination of the test. Weight curves for the three pups born to dog No. 11 are also shown in Figure 2. Their growth appeared to be normal.

In general, the weight curves of all the animals show no indication of deleterious effect from the ingestion of methyl chloride.

BLOOD EXAMINATIONS

Table 3 shows the results of examination for changes in the blood.

TABLE 3.—Blood examinations of dogs ingesting methyl-chloride saturated water
DOG NO. 11

Time after start of test, days	Red blood cells	White blood cells	Hemoglobin	Polymorphonuclear leukocytes	Lymphocytes	Endothelial leukocytes	Eosinophils	Basophils	Lymphoblasts	Megaloblasts	Normoblasts
93.....	7,000,000	7,000	90	60	40	0	0	0	0	0	0
144.....	6,510,000	10,600	90	63	35	0	1	0	1	0	0
156.....	6,140,000	8,900	95	72	27	0	1	0	1	0	0
171.....	6,650,000	9,000	98	65	31	0	4	0	0	0	0

DOG NO. 12

93.....	6,500,000	14,000	108	74	15	1	10	0	0	0	0
107.....	6,580,000	11,000	110	66	33	0	1	0	0	0	0
144.....	6,970,000	6,700	110	57	38	0	5	0	0	0	0
166.....	6,050,000	9,000	100	60	38	0	2	0	0	0	0
171.....	6,200,000	9,000	108	47	50	2	1	0	0	0	0

The results of hemoglobin, red and white cells, and differential white-cell determinations are similar to those made on control dogs attached to other experiments which were in progress at the time of the study described in this report. No changes or trends are indicated.

EXAMINATION OF URINE FOR FORMATES

The urine of dog No. 12 was examined for formates on the tenth and sixty-third day of the experiment. Analysis of 150 c. c. speci-

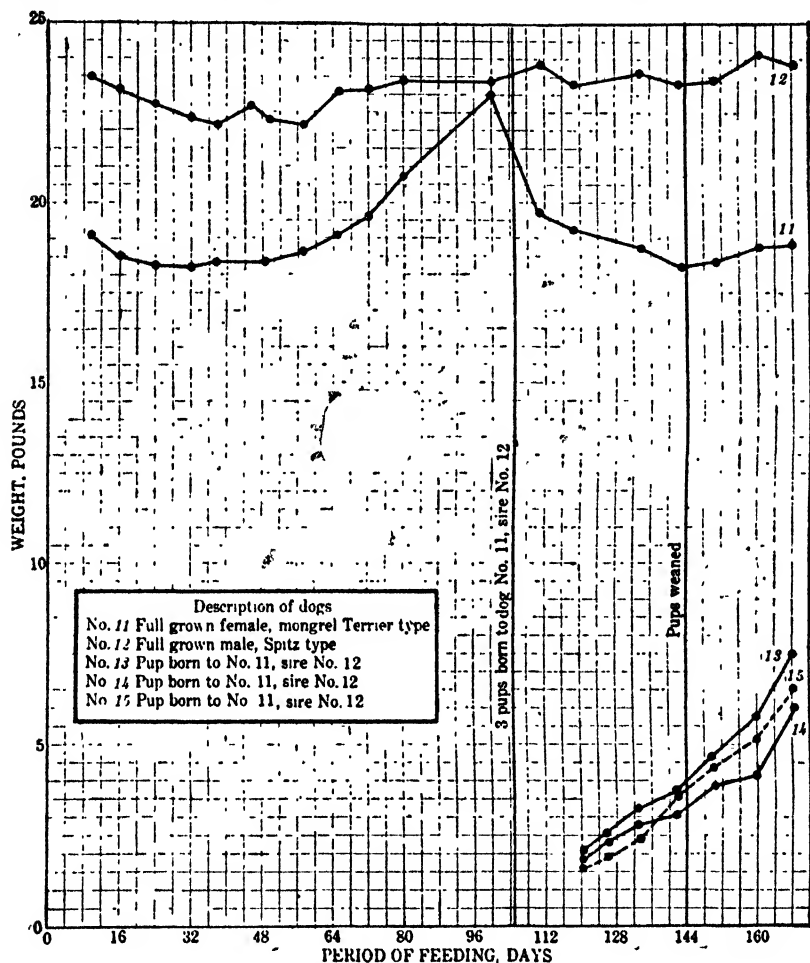


FIGURE 2.—Weight curves of dogs fed water saturated with methyl chloride at 20° to 30° C.

mens collected over 24 hours were negative. The accuracy of the method of analysis was 2 milligrams of formic acid per 150 c. c. urine.

AUTOPSY FINDINGS

After a test period of 171 days the animals were killed by intracardial injection of 10 c. c. of saturated aqueous magnesium sulphate

solution. Specimens of tissue were taken for microscopic examination, but with the exception of the brief reference given to frozen kidney sections, the microscopic findings will be reported later. Gross autopsy findings follow:

On external inspection all organs, including the brain, were negative for pathology attributable to methyl chloride. Cut section of the kidney, however, revealed a prominent yellowish streaking of the inner zone of the cortex, resembling fatty degeneration of the tubules. Microscopic examination of frozen sections revealed intracellular fatty degeneration affecting the ascending, descending, and collecting tubules. The glomeruli and convoluted tubules were apparently undamaged.

SUMMARY

The possibility of poisoning by ingestion of methyl-chloride contaminated food and water was studied by exposing dogs.

1. No apparent signs of poisoning were caused by the average daily ingestion on four consecutive days of 550 grams of ground raw beef or 200 c. c. of milk that had been exposed 15 to 75 hours to 100 per cent methyl-chloride vapor at 35° F.

2. No apparent symptoms of poisoning or changes in the hemoglobin and blood cells were caused by the ingestion of methyl-chloride contaminated water on 115 days of a total period of 171 test days. Also, no formates were found in the urine. Autopsy and examination of frozen sections, however, revealed a moderate degree of intracellular fatty degeneration affecting the ascending, descending, and collecting tubules of the kidney. Analysis showed the water to be 75 to 100 per cent saturated with an average methyl-chloride content of 0.595 gram per 100 c. c. of water. This was the only water given the animals on six days of each week of the test.

3. The taste of water saturated with methyl chloride at 68° F. is sharp, sweetish, and sickening when first taken into the mouth, followed almost immediately by a burning sensation. Persons would not drink more than a mouthful or two. It was frequently refused by the animals, even though they were deprived of other water.

ACKNOWLEDGMENTS

The writers desire to give acknowledgment to T. Coyle, service engineer of the Roessler & Hasslacher Chemical Co., for suggesting the work and arranging the cooperation of his company. The experimental work was conducted at the Pittsburgh Experiment Station of the Bureau of Mines, with the assistance of Surg. R. R. Sayers, United States Public Health Service, chief surgeon, Bureau of Mines, in planning the work; H. H. Schrenk, associate toxicologist, and F. A. Patty, assistant physiological chemist, in developing the

analytical method; Asst. Surg. C. P. Waite, United States Public Health Service, in making pathological examination; and Ethel R. Stead, in making the blood examinations.

EXTENT OF RURAL HEALTH SERVICE IN THE UNITED STATES, 1926-1930

By L. L. LUMSDEN, *Senior Surgeon, United States Public Health Service*

According to data obtained by the Rural Sanitation Office of the Public Health Service from the health departments of the States, the following (Table 1) is a list, by States, of counties (or districts) in which the rural sections thereof at the beginning of the calendar years 1926, 1927, 1928, 1929, and 1930, respectively, were provided with local health service under the administration of whole-time county or (local) district health officers.

TABLE 1.—*List of counties or districts in which as of January 1, 1926, 1927, 1928, 1929, and 1930, respectively, rural sections were provided with health service under whole-time local health officers*

ALABAMA

1926	1927	1928	1929	1930
Baldwin.	Baldwin.	Baldwin.	Baldwin.	Baldwin.
Barbour.	Barbour.	Barbour.	Barbour.	Barbour.
Calhoun.	Calhoun.	Calhoun.	Blount.	Blount.
Coffee.	Chambers.	Chambers.	Bullock.	Bullock.
Colbert.	Coffee.	Coffee.	Calhoun.	Calhoun.
Covington.	Colbert.	Colbert.	Chambers.	Chambers.
Dallas.	Covington.	Covington.	Cherokee.	Cherokee.
Escambia.	Dallas.	Cullman.	Clarke.	Choctaw.
Etowah.	Escambia.	Dale.	Cleburne.	Clarke.
Franklin.	Etowah.	Dallas.	Coffee.	Cleburne.
Houston.	Franklin.	Elmore.	Colbert.	Coffee.
Jackson.	Houston.	Escambia.	Concub.	Colbert.
Jefferson.	Jackson.	Etowah.	Covington.	Concub.
Lauderdale.	Jefferson.	Franklin.	Crenshaw.	Covington.
Lawrence.	Lauderdale.	Houston.	Cullman.	Crenshaw.
Lee.	Lawrence.	Jefferson.	Dale.	Cullman.
Limestone.	Lee.	Lauderdale.	Dallas.	Dale.
Madison.	Limestone.	Lawrence.	De Kalb.	Dallas.
Marango.	Madison.	Lee.	Elmore.	De Kalb.
Marshall.	Marango.	Limestone.	Escambia.	Elmore.
Mobile.	Marshall.	Madison.	Etowah.	Escambia.
Montgomery.	Mobile.	Marango.	Franklin.	Etowah.
Morgan.	Montgomery.	Marshall.	Houston.	Franklin.
Pike.	Morgan.	Mobile.	Jackson.	Geneva.
Sumter.	Pike.	Monroe.	Jefferson.	Houston.
Talladega.	Sumter.	Montgomery.	Lamar.	Jackson.
Tuscaloosa.	Talladega.	Morgan.	Lauderdale.	Jefferson.
Walker.	Tallapoosa.	Pike.	Lawrence.	Lamar.
	Tuscaloosa.	Sumter.	Lee.	Lauderdale.
	Walker.	Limestone.	Lowndes.	Lawrence.
		Talladega.	Lowndes.	Lee.
		Tallapoosa.	Macon.	Limestone.
		Tuscaloosa.	Madison.	Lowndes.
		Walker.	Marango.	Macon.
			Marshall.	Madison.
			Mobile.	Marango.
			Monroe.	Marshall.
			Montgomery.	Mobile.
			Morgan.	Monroe.
			Pickens.	Montgomery.
			Pike.	Morgan.
			Shelby.	Pickens.
			Sumter.	Shelby.
			Talladega.	Sumter.
			Tallapoosa.	Talladega.
			Tuscaloosa.	Tallapoosa.
			Walker.	Tuscaloosa.
			Wilcox.	Walker.
			Winston.	Washington.
				Wilcox.
				Winston.

TABLE 1.—List of counties or districts in which as of January 1, 1926, 1927, 1928, 1929, and 1930, respectively, rural sections were provided with health service under whole-time local health officers—Continued

ARIZONA

1926	1927	1928	1929	1930
Cochise.	Cochise. Yuma.	Cochise. Coconino. Yuma.	Cochise. Coconino. Yuma.	Cochise. Coconino. Yuma.

ARKANSAS

Garland. Jefferson. Pulaski.	Garland. Jefferson. Pulaski.	Arkansas. Ashley. Chicot. Conway. Crittenden. Cross. Desha. Drew. Garland. Jackson. Jefferson. Little River. Mississippi. Monroe. Phillips. Pope. Pulaski. Saline. Union. Woodruff. Yell	Arkansas. Ashley. Chicot. Conway. Crittenden. Cross. Desha. Drew. Faulkner. Garland. Jackson. Jefferson. Little River. Mississippi. Monroe. Phillips. Pope. Pulaski. Saline. Sebastian. Union. White. Woodruff. Yell.	Arkansas. Ashley. Conway. Cross. Desha. Drew. Garland. Jackson. Jefferson. Little River. Mississippi. Monroe. Phillips. Pope. Pulaski. Saline. Sebastian. Union. White. Woodruff. Yell.
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CALIFORNIA

Los Angeles. Monterey. Orange. San Diego. San Joaquin. San Luis Obispo. Santa Barbara.	Los Angeles. Monterey. Orange. Riverside. San Diego. San Joaquin. San Luis Obispo.	Los Angeles. Monterey. Orange. Riverside. San Diego. San Joaquin. San Luis Obispo.	Contra Costa. Los Angeles. Madera. Monterey. Orange. Riverside. San Diego.	Contra Costa. Los Angeles. Madera. Monterey. Orange. Riverside. San Diego.
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COLORADO

Otero.	Otero.	Otero.	Otero.	Otero.
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CONNECTICUT

Fairfield. ¹	Fairfield. ¹	Fairfield. ¹	Fairfield. ¹	Fairfield.
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FLORIDA

Polk.	Manatee. Polk. Sarasota.	Manatee. Polk. Sarasota.	Manatee. Polk. Sarasota.	Manatee. Sarasota.
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¹ District.

TABLE 1.—*List of counties or districts in which as of January 1, 1926, 1927, 1928, 1929, and 1930, respectively, rural sections were provided with health service under whole-time local health officers—Continued*

GEORGIA

1926	1927	1928	1929	1930
Baker. Baldwin. Bartow. Bibb. Clarke. Cobb. Decatur. De Kalb. Dougherty. Floyd. Glynn. Grady. Hall. Laurens. Lowndes. Mitchell. Richmond. Sumter. Thomas. Troup. Walker. Ware.	Baker. Baldwin. Bartow. Bibb. Brooks. Clarke. Cobb. Decatur. De Kalb. Dougherty. Floyd. Glynn. Grady. Hall. Laurens. Lowndes. Mitchell. Richmond. Spalding. Sumter. Thomas. Troup. Walker. Ware.	Baldwin. Bartow. Bibb. Brooks. Chatham. Clarke. Cobb. Coffee. Colquitt. Crisp. Decatur. De Kalb. Dougherty. Floyd. Glynn. Hall. Laurens. Lowndes. Mitchell. Richmond. Spalding. Sumter. Thomas. Troup. Walker. Ware. Washington.	Baldwin. Bartow. Bibb. Brooks. Chatham. Clarke. Cobb. Coffee. Colquitt. Crisp. Decatur. De Kalb. Dougherty. Emanuel. Floyd. Glynn. Grady. Hall. Laurens. Lowndes. Mitchell. Richmond. Spalding. Sumter. Thomas. Troup. Walker. Ware. Washington. Wayne. Worth.	Baldwin. Bartow. Bibb. Brooks. Chatham. Clarke. Clinch. Cobb. Coffee. Colquitt. Crisp. Decatur. De Kalb. Dougherty. Emanuel. Floyd. Glynn. Grady. Hall. Jefferson. Jenkins. Laurens. Lowndes. Mitchell. Richmond. Spalding. Sumter. Thomas. Troup. Walker. Ware. Washington. Wayne. Worth.

IDAHO

				Bonneville. Twin Falls.
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ILLINOIS

Cook. Morgan. Sangamon.	Cook. Morgan. Sangamon.	Cook. Du Page. Morgan.	Cook. Du Page. Morgan. Pulaski.	Cook. Du Page. Morgan.
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IOWA

Dubuque.	Dubuque.			
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KANSAS

Butler. Coffey. Ellis. Geary. Jefferson. Lyon. Marion. McPherson. Ottawa. Phillips.	Butler. Coffey. Ellis. Geary. Jefferson. Lyon. Marion. Ottawa. Phillips	Butler. Cherokee. Ellis. Geary. Greenwood. Jefferson. Lyon. Marion. Ottawa. Shawnee	Brown. Butler. Cherokee. Geary. Greenwood. Jefferson. Lyon. Marion. Ottawa. Shawnee.	Brown. Butler. Cherokee. Dickinson. Geary. Greenwood. Lyon. Marion. Ottawa. Sedgwick. Shawnee.
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TABLE 1.—List of counties or districts in which as of January 1, 1926, 1927, 1928, 1929, and 1930, respectively, rural sections were provided with health service under whole-time local health officers—Continued

KENTUCKY

1926	1927	1928	1929	1930
Boyd. Davless. Fayette. Fulton. Jefferson. Johnson. Mason. Scott.	Boyd. Davless. Fayette. Fulton. Jefferson. Johnson. Knott. Mason. Scott.	Ballard. Boyd. Breathitt. Carlisle. Carter. Davless. Elliott. Estill. Fayette. Floyd. Fulton. Henderson. Hickman. Hopkins. Johnson. Knott. Lawrence. Lee. Leslie. Letcher. Magoffin. Martin. Mason. McLean. Menefee. Morgan. Owsley. Perry. Pike. Scott. Webster. Wolfe.	Ballard. Bell. Boyd. Breathitt. Bullitt. Carlisle. Carter. Davless. Elliott. Estill. Fayette. Floyd. Fulton. Henderson. Hickman. Hopkins. Johnson. Knott. Knox. Lawrence. Lee. Leslie. Letcher. Magoffin. Martin. Mason. McLean. Menefee. Monroe. Morgan. Ohio. Owsley. Perry. Pike. Scott. Trigg. Webster. Whitley. Wolfe.	Ballard. Bell. Boyd. Breathitt. Bullitt. Callaway. Carlisle. Carter. Davless. Elliott. Estill. Fayette. Floyd. Fulton. Henderson. Hickman. Hopkins. Jefferson. Johnson. Kenton. Knott. Knox. Lawrence. Lee. Leslie. Letcher. Magoffin. Martin. Mason. McLean. Menefee. Monroe. Morgan. Muhlenberg. Ohio. Owsley. Perry. Pike. Scott. Trigg. Union. Wayne. Webster. Whitley. Wolfe.

LOUISIANA ¹

Caddo. Claiborne. De Soto. Lafourche. Natchitoches. Ouachita. Plaquemines. St. Mary. Tangipahoa. Washington. Webster.	Caddo. Claiborne. De Soto. Lafourche. Natchitoches. Ouachita. Plaquemines. St. Mary. Washington. Webster.	Assumption. Avoyelles. Caddo. Caldwell. Catahoula. Claiborne. Concordia. De Soto. East Carroll. Franklin. Iberia. Lafayette. Lafourche. La Salle. Madison. Morehouse. Natchitoches. Ouachita. Plaquemines. Rapides. Richland. St. Martin. St. Mary. Tangipahoa.	Assumption. Avoyelles. Caddo. Caldwell. Catahoula. Claiborne. Concordia. De Soto. East Carroll. Franklin. Iberia. Iberville. Lafayette. Lafourche. La Salle. Madison. Morehouse. Natchitoches. Ouachita. Point Coupee. Rapides. Richland. St. Landry. St. Martin.	Assumption. Avoyelles. Caddo. Caldwell. Catahoula. Claiborne. Concordia. De Soto. East Carroll. Franklin. Iberia. Iberville. Lafayette. Lafourche. La Salle. Lincoln. Madison. Morehouse. Natchitoches. Ouachita. Point Coupee. Rapides. Richland. St. Landry.
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¹ Parishes.

TABLE 1.—*List of counties or districts in which as of January 1, 1926, 1927, 1928, 1929, and 1930, respectively, rural sections were provided with health service under whole-time local health officers—Continued*

LOUISIANA—Continued

1926	1927	1928	1929	1930
		Tensas. Washington. Webster. West Carroll.	St. Mary. Tensas. Terrebonne. Webster. West Carroll.	St. Martin. St. Mary. Tensas. Terrebonne. Washington. Webster. West Carroll.

MAINE

Oldtown. Rumford. Sanford. Waterville. York.	Oldtown. Rumford. Sanford. Waterville. York.	Motbov Union. ¹ Rumford. ⁴ Sanford. ⁴ Vassalboro. ⁴	Motbov Union. ¹ Rumford. ⁴ Sanford. ⁴ Vassalboro. ⁴	Motbov Union. ¹ Rumford. ⁴ Sanford. ⁴ Vassalboro. ⁴
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MARYLAND

Allegany. Baltimore. Calvert. Carroll. Frederick. Montgomery.	Allegany. Baltimore. Calvert. Carroll. Frederick. Montgomery.	Allegany. Baltimore. Calvert. Carroll. Frederick. Montgomery. Prince Georges. Talbot.	Allegany. Baltimore. Calvert. Carroll. Frederick. Harford. Montgomery. Prince Georges. Talbot.	Allegany. Baltimore. Calvert. Carroll. Cecil. Frederick. Harford. Montgomery. Prince Georges. Talbot. Wicomico.
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MASSACHUSETTS

Cape Cod. ¹	Cape Cod. ¹	Barnstable. ⁴	Barnstable.	Barnstable.
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MICHIGAN

			Oakland. Saginaw. Wexford.	Genesee. Oakland. Saginaw. Wexford.
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MINNESOTA

St. Louis.	St. Louis.	St. Louis.	St. Louis.	St. Louis.
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MISSISSIPPI

Bolivar. Coahoma. Forrest. Hancock. Harrison. Hinds. Jackson. Jones. Lee. Leflore. Pearl River.	Bolivar. Clarke. Coahoma. Forrest. Hancock. Harrison. Hinds. Holmes. Jackson. Jones. Lamar.	Bolivar. Clarke. Coahoma. Forrest. Hancock. Harrison. Hinds. Holmes. Humphreys. Issaquena. Jackson.	Adams. Bolivar. Clarke. Coahoma. Copiah. Forrest. Hancock. Harrison. Hinds. Holmes. Humphreys.	Adams. Bolivar. Clarke. Coahoma. Copiah. Forrest. Hancock. Harrison. Hinds. Holmes. Humphreys.
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¹ District.² Including towns of Orono, Milford, Bradley, and Veazie.⁴ Town (township) wholly or partly rural.⁵ See Reprint No. 1184, p. 34, from Public Health Reports of Oct. 21, 1927.

TABLE 1.—*List of counties or districts in which as of January 1, 1926, 1927, 1928, 1929, and 1930, respectively, rural sections were provided with health service under whole-time local health officers—Continued*

MISSISSIPPI—Continued

1926	1927	1928	1929	1930
Sharkey. Washington.	Lee. Leflore. Pearl River. Perry. Sharkey. Union. Washington.	Jones. Lamar. Lee. Leflore. Pearl River. Perry. Sharkey. Sunflower. Tishomingo. Union. Warren. Washington. Yazoo.	Issaquena. Jackson. Jones. Lamar. Lauderdale. Lee. Leflore. Lincoln. Monroe. Pearl River. Perry. Sharkey. Sunflower. Tishomingo. Union. Warren. Washington. Yazoo.	Issaquena. Jackson. Lamar. Lauderdale. Lee. Leflore. Lincoln. Monroe. Pearl River. Perry. Sharkey. Sunflower. Tishomingo. Union. Warren. Washington. Yazoo.

MISSOURI

Boone. Dunklin. Greene. Jackson. New Madrid. Nodaway. Pemiscot. Pettis. Polk. St. Francois. St. Louis.	Boone. Dunklin. Greene. Holt. Jackson. Marion. New Madrid. Nodaway. Pemiscot. Pettis. St. Francois. St. Louis.	Boone. Dunklin. Greene. Holt. Jackson. Marion. Mississippi. New Madrid. Nodaway. Pemiscot. Pettis. Scott. St. Francois. St. Louis.	Boone. Dunklin. Greene. Jackson. Marion. Mississippi. New Madrid. Nodaway. Pemiscot. St. Francois. St. Louis. Scott.	Boone. Buchanan. Dunklin. Greene. Jackson. Marion. Mississippi. New Madrid. Nodaway. Pemiscot. St. Francois. St. Louis. Scott.
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MONTANA

Cascade. Lewis and Clark. Missoula.	Cascade. Lewis and Clark. Missoula.	Cascade. Lewis and Clark. Missoula.	Cascade. Lewis and Clark. Missoula.	Cascade. Gallatin. Lewis and Clark. Missoula.
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NEW MEXICO

Bernalillo. Chaves. Colfax. Dona Ana. Eddy. McKinley. Santa Fe. Union. Valencia.	Bernalillo. Chaves. Dona Ana. Eddy. McKinley. Santa Fe. San Miguel. Union. Valencia.	Bernalillo. Chaves. Dona Ana. Eddy. McKinley. Santa Fe. Union. Valencia.	Bernalillo. Chaves. Dona Ana. Eddy. Santa Fe. Union. Valencia.	Bernalillo. Chaves. Dona Ana. Eddy. McKinley. Union. Valencia.
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NEW YORK

Cattaraugus.	Cattaraugus.	Cattaraugus.	Cattaraugus. Suffolk.	Cattaraugus. Cortland. Suffolk. Westchester.
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TABLE 1.—*List of counties or districts in which as of January 1, 1926, 1927, 1928, 1929, and 1930, respectively, rural sections were provided with health service under whole-time local health officers—Continued*

NORTH CAROLINA

1926	1927	1928	1929	1930
Beaufort. Bertie. Bladen. Brunswick. Buncombe. Cabarrus. Columbus. Craven. Cumberland. Davidson. Durham. Edgecombe. Forsyth. Granville. Gulford. Halifax. Henderson. Johnston. Lenoir. Mecklenburg. New Hanover. Northampton. Pamlico. Pitt. Richmond. Robeson. Rowan. Rutherford. Sampson. Surry. Vance. Wake. Wayno. Wilkes. Wilson.	Beaufort. Bertie. Bladen. Brunswick. Buncombe. Cabarrus. Carteret. Columbus. Craven. Cumberland. Davidson. Durham. Edgecombe. Forsyth. Granville. Gulford. Halifax. Henderson. Johnston. Lenoir. Mecklenburg. Nash. New Hanover. Northampton. Pamlico. Pitt. Richmond. Robeson. Rowan. Rutherford. Sampson. Surry. Vance. Wake. Wayne. Wilkes. Wilson.	Beaufort. Bertie. Bladen. Brunswick. Buncombe. Cabarrus. Carteret. Columbus. Craven. Cumberland. Davidson. Durham. Edgecombe. Forsyth. Granville. Gulford. Halifax. Henderson. Johnston. Lenoir. Mecklenburg. Nash. New Hanover. Northampton. Pamlico. Pitt. Richmond. Robeson. Rowan. Rutherford. Sampson. Surry. Vance. Wake. Wayne. Wilkes. Wilson.	Beaufort. Bertie. Bladen. Brunswick. Buncombe. Cabarrus. Columbus. Craven. Cumberland. Davidson. Durham. Edgecombe. Forsyth. Gaston. Granville. Gulford. Halifax. Henderson. Johnston. Lenoir. Mecklenburg. Moore. Nash. New Hanover. Northampton. Pamlico. Pitt. Richmond. Randolph. Robeson. Rowan. Rutherford. Sampson. Surry. Vance. Wake. Wayno. Wilkes. Wilson.	Beaufort. Bertie. Bladen. Buncombe. Cabarrus. Cherokee. Columbus. Craven. Cumberland. Davidson. Durham. Edgecombe. Forsyth. Gaston. Granville. Gulford. Halifax. Henderson. Johnston. Lenoir. Mecklenburg. Moore. Nash. New Hanover. Northampton. Pitt. Randolph. Richmond. Robeson. Rowan. Rutherford. Sampson. Surry. Vance. Wake. Wayne. Wilkes. Wilson.

OHIO

Allen. Ashtabula. Athens. Belmont. Butler. Clermont. Clinton. Columbiana. Coshocton. Crawford. Cuyahoga. Darke. Delaware. Erie. Fayette. Franklin. Geauga. Hamilton. Hancock. Hocking. Huron. Jefferson. Lake. Lorain. Lucas. Mahoning. Marion. Meigs. Mercer. Miami. Montgomery. Morrow. Muskingum. Perry.	Allen. Ashtabula. Belmont. Butler. Clermont. Clinton. Columbiana. Coshocton. Crawford. Cuyahoga. Darke. Delaware. Erie. Fayette. Geauga. Hamilton. Hancock. Hocking. Huron. Jefferson. Lake. Lorain. Lucas. Mahoning. Marion. Meigs. Mercer. Miami. Montgomery. Morrow. Muskingum. Perry. Preble.	Allen. Ashtabula. Belmont. Butler. Clermont. Clinton. Columbiana. Coshocton. Crawford. Cuyahoga. Darke. Delaware. Erie. Fayette. Franklin. Geauga. Hamilton. Hancock. Hocking. Huron. Jefferson. Lake. Lorain. Lucas. Mahoning. Marion. Meigs. Mercer. Miami. Montgomery. Morrow. Muskingum. Perry.	Allen. Ashtabula. Belmont. Butler. Clinton. Columbiana. Coshocton. Crawford. Cuyahoga. Darke. Delaware. Erie. Fayette. Franklin. Geauga. Hamilton. Hancock. Hocking. Huron. Jefferson. Lake. Lorain. Lucas. Mahoning. Marion. Meigs. Mercer. Miami. Montgomery. Morrow. Perry. Preble. Richland.	Allen. Ashtabula. Belmont. Butler. Clinton. Columbiana. Coshocton. Crawford. Cuyahoga. Darke. Delaware. Erie. Fayette. Franklin. Geauga. Hamilton. Hancock. Hocking. Huron. Jefferson. Lake. Lorain. Lucas. Mahoning. Marion. Meigs. Mercer. Miami. Montgomery. Morrow. Perry. Pickaway. Preble.
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TABLE 1.—List of counties or districts in which as of January 1, 1926, 1927, 1928, 1929, and 1930, respectively, rural sections were provided with health service under whole-time local health officers—Continued

OHIO—Continued

Richland. Ross. Sandusky. Scioto. Seneca. Shelby. Stark. Summit. Trumbull. Tuscarawas. Union. Washington. Wayne. Wood.	Richland. Ross. Sandusky. Scioto. Seneca. Shelby. Stark. Summit. Trumbull. Tuscarawas. Union. Washington. Wayne. Wood.	Preble. Richland. Ross. Sandusky. Scioto. Seneca. Shelby. Stark. Summit. Trumbull. Tuscarawas. Washington. Wayne. Wood.	Ross. Sandusky. Scioto. Seneca. Shelby. Stark. Summit. Trumbull. Tuscarawas. Washington. Wayne. Wood.	Richland. Ross. Sandusky. Scioto. Seneca. Shelby. Stark. Summit. Trumbull. Tuscarawas. Washington. Wayne. Wood.
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OKLAHOMA

Carter. Le Flore. McCurtain. Muskogee. Oklahoma. Okmulgee. Ottawa. Pittsburg.	Carter. Kay. Le Flore. McCurtain. Muskogee. Oklahoma. Okmulgee. Ottawa. Pittsburg.	Carter. Kay. Le Flore. McCurtain. Muskogee. Okmulgee. Ottawa. Pittsburg. Seminole.	Carter. Kay. Le Flore. McCurtain. Muskogee. Okmulgee. Osage. Ottawa. Pittsburg. Seminole.	Carter. Le Flore. McCurtain. Muskogee. Okmulgee. Osage. Ottawa. Pittsburg. Seminole.
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OREGON

Clackamas. Coos. Douglas. Jackson. Klamath.	Clackamas. Coos. Douglas. Jackson. Klamath.	Clackamas. Coos. Douglas. Jackson. Klamath. Marion. Multnomah.	Clackamas. Coos. Douglas. Jackson. Klamath. Marion. Multnomah.	Clackamas. Coos. Douglas. Jackson. Klamath. Marion. Multnomah.
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SOUTH CAROLINA

Aiken. Anderson. Beaufort. Charleston. Cherokee. Colleton. Darlington. Dillon. Fairfield. Georgetown. Greenville. Greenwood. Marion. Newberry. Orangeburg. Spartanburg.	Aiken. Anderson. Beaufort. Charleston. Cherokee. Darlington. Dillon. Fairfield. Georgetown. Greenville. Greenwood. Horry. Marion. Newberry. Orangeburg. Spartanburg.	Aiken. Anderson. Beaufort. Charleston. Cherokee. Darlington. Dillon. Fairfield. Georgetown. Greenville. Greenwood. Horry. Marion. Newberry. Orangeburg. Spartanburg.	Aiken. Anderson. Beaufort. Berkeley. Charleston. Cherokee. Darlington. Dillon. Dorchester. Fairfield. Georgetown. Greenville. Greenwood. Horry. Marion. Newberry. Oconee. Orangeburg. Richland. Spartanburg.	Aiken. Anderson. Beaufort. Berkeley. Charleston. Cherokee. Darlington. Dillon. Dorchester. Fairfield. Florence. Georgetown. Greenville. Greenwood. Horry. Kershaw. Lexington. Marion. Newberry. Oconee. Orangeburg. Richland. Spartanburg.
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TABLE 1.—*List of counties or districts in which as of January 1, 1926, 1927, 1928, 1929, and 1930, respectively, rural sections were provided with health service under whole-time local health officers—Continued*

SOUTH DAKOTA

1926	1927	1928	1929	1930
Brown. Pennington. Yankton.	Brown. Pennington.	Pennington.	Pennington.	Pennington.

TENNESSEE

Blount. Davidson. Dyer. Gibson. Hamilton. Montgomery. Obion. Roane. Rutherford. Sevier. Weakley. Williamson.	Blount. Davidson. Dyer. Gibson. Hamilton. Lauderdale. Montgomery. Obion. Roane. Rutherford. Sevier. Shelby. Weakley. Williamson.	Blount. Bradley. Davidson. Dyer. Gibson. Hamilton. Lake. Lauderdale. Montgomery. Obion. Roane. Rutherford. Sevier. Shelby. Washington. Weakley. Williamson.	Blount. Bradley. Carter. Davidson. Dyer. Gibson. Greene. Hamilton. Knox. Lake. Lauderdale. Monroe. Montgomery. Obion. Roane. Rutherford. Sevier. Shelby. Sullivan. Washington. Weakley. Williamson. Wilson.	Bledsoe. Blount. Bradley. Carter. Clay. Davidson. Dyer. Fentress. Gibson. Giles. Greene. Grundy. Hamilton. Hardeman. Jackson. Knox. Lake. Lauderdale. Lincoln. Meigs. Monroe. Montgomery. Obion. Overton. Pickett. Rhea. Roane. Rutherford. Sequatchie. Sevier. Shelby. Sullivan. Sumner. Tipton. Washington. Weakley. Williamson. Wilson.
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TEXAS

Cameron. Hidalgo. Jefferson. McLennan. Tarrant.	Cameron. Hidalgo. Jefferson. McLennan. Tarrant.	Cameron. Hidalgo. McLennan. Tarrant.	Cameron. Hidalgo. McLennan. Tarrant.	Cameron. Hidalgo. Jefferson. McLennan. Nolan. Tarrant.
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UTAH

Davis. Weber.	Box Elder. Davis. Morgan. Summit. Wasatch. Weber.	Box Elder. Davis. Summit. Utah. Wasatch.	Box Elder. Davis. Utah.	Box Elder. Davis. Utah.
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TABLE 1.—List of counties or districts in which as of January 1, 1926, 1927, 1928, 1929, and 1930, respectively, rural sections were provided with health service under whole-time local health officers—Continued

VIRGINIA

1926	1927	1928	1929	1930
Accomac. Albemarle. Arlington. Augusta. Brunswick. Fairfax. Halifax. Henrico. Isle of Wight. James City. Nansemond. Northampton. Sussex. Wise.	Accomac. Albemarle. Arlington. Augusta. Brunswick. Fairfax. Halifax. Henrico. Isle of Wight. James City. Nansemond. Northampton. Southampton. Sussex. Wise.	Accomac. Albemarle. Arlington. Augusta. Brunswick. Halifax. Henrico. Isle of Wight. Nansemond. Norfolk. Northampton. Princess Anne. Rockbridge. Southampton.	Accomac. Albemarle. Arlington. Augusta. Brunswick. Greensville. Halifax. Henrico. Isle of Wight. Nansemond. Norfolk. Northampton. Princess Anne. Rockbridge. Southampton. Wise.	Accomac. Albemarle. Arlington. Augusta. Brunswick. Fairfax. Greensville. Halifax. Henrico. Isle of Wight. Nansemond. Norfolk. Northampton. Princess Anne. Rockbridge. Southampton. Wise.

WASHINGTON

Chelan. King. Walla Walla. Yakima.	Chelan. King. Snohomish. Spokane. Walla Walla. Yakima.	Chelan. King. Snohomish. Spokane. Walla Walla. Whitman. Yakima.	Chelan. King. Snohomish. Spokane. Walla Walla. Whitman. Yakima.	Chelan. Clarke. King. Snohomish. Spokane. Walla Walla. Whitman. Yakima.
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WEST VIRGINIA

Gilmer. Hancock. Harrison. Logan. Marion. Marshall. Preston. Roane.	Boone. Brooke. Gilmer. Hancock. Harrison. Kanawha. Logan. Marion. Marshall. Ohio. Preston. Roane. Wood.	Berkeley. Boone. Brooke. Gilmer. Hancock. Harrison. Kanawha. Lewis. Logan. Marion. Marshall. Ohio. Preston. Wood.	Berkeley. Boone. Brooke. Fayette. Gilmer. Hancock. Harrison. Kanawha. Logan. Marion. Ohio. Preston. Raleigh. Wood.	Berkeley. Boone. Brooke. Fayette. Gilmer. Hancock. Harrison. Kanawha. Logan. Marion. Monongalia. Ohio. Preston. Raleigh. Wood.
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WYOMING

Natrona.	Natrona.	Natrona	Natrona.	
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Résumé of Table 1

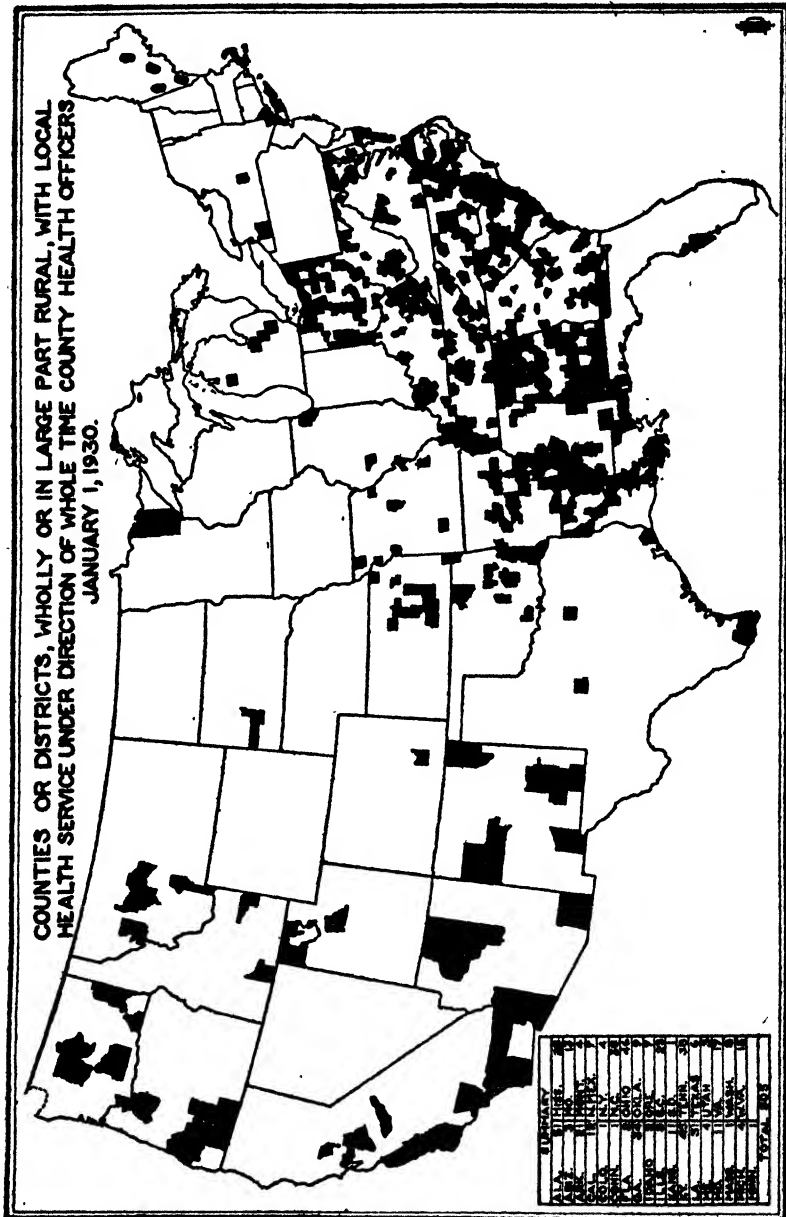
State	Number of counties Jan. 1					Increase or de- crease in 1926	Increase or de- crease in 1927	Increase or de- crease in 1928	Increase or de- crease in 1929
	1926	1927	1928	1929	1930				
Alabama.....	28	30	33	50	51	+2	+3	+17	+1
Arizona.....	1	2	3	3	3	+1	+1		
Arkansas.....	3	3	21	24	21		+18	+3	-3
California.....	7	9	9	11	12	+2		+2	+1
Colorado.....	1	1	1	1	1				
Connecticut.....	1	1	1	1	1				
Florida.....	1	3	3	3	2	+2			-1
Georgia.....	22	24	27	31	34	+2	+3	+4	+3
Idaho.....					2				+2
Illinois.....	3	3	3	4	3			+1	-1
Iowa.....	1	1					-1		
Kansas.....	10	9	10	10	11	-1	+1		+1
Kentucky.....	8	9	32	39	45	+1	+23	+7	+6
Louisiana.....	11	10	28	29	31	-1	+18	+1	+2
Maine.....	5	5	4	4	4			-1	
Maryland.....	6	6	8	9	11		+2	+1	+2
Massachusetts.....	1	1	1	1	1				
Michigan.....				13	4			+3	+1
Minnesota.....	1	1	1	1	1				
Mississippi.....	13	18	24	29	26	+5	+6	+5	-1
Missouri.....	11	12	14	12	13	+1	+2	-2	+1
Montana.....	3	3	3	3	4				+1
New Mexico.....	9	9	8	7	7		-1	-1	
New York.....	1	1	1	2	4			+1	+2
North Carolina.....	35	37	37	39	38	+2		+2	-1
Ohio.....	47	47	47	45	46			-2	+1
Oklahoma.....	8	9	9	10	9	+1		+1	-1
Oregon.....	5	5	7	7	7		+2		
South Carolina.....	16	16	16	20	23			+4	+3
South Dakota.....	3	2	1	1	1	-1	-1		
Tennessee.....	12	14	17	23	38	+2	+3	+6	+15
Texas.....	5	5	4	4	6		-1		+2
Utah.....	2	6	5	3	3	+4	-1	-2	
Virginia.....	14	15	14	16	17	+1	-1	+2	+1
Washington.....	4	6	7	7	8	+2	+1		+1
West Virginia.....	8	13	14	14	15	+5	+1		+1
Wyoming.....	1	1	1	1					-1
Total.....	307	337	414	467	505	+30	+77	+53	+38

¹ Information that 2 units were operating in Michigan on Jan. 1, 1928, was not received until after publication of the report on Extent of Rural Health Service in the United States, 1924-1928 (Reprint No. 1220 from Public Health Reports of Apr. 13, 1928), and consequently the item was not included in the list in that report.

The accompanying map shows the location of the counties or districts in the United States in the rural sections of which local health service under the direction of whole-time local (county or district) health officers was in operation on January 1, 1930.

Within the period January 1, 1929, to January 1, 1930, whole-time county or (local) district health officer service was established in 47 units and was discontinued in 9—a net gain of 38. The largest gain in one State was that of 15 in Tennessee. Over 48 per cent of the rural population of that State is now provided with county health service under the direction of whole-time county health officers, as against 14.03 per cent on January 1, 1925. This development has been on a cooperative basis, the State department of public health contributing financially to all of the projects and the United States Public Health Service or the Rockefeller Foundation,

or both, contributing to most of them. The progress in the establishment of well-rounded, effective, economical, whole-time rural health service in Tennessee during the last five years is attributable



in large part to the constructive policy and the well directed and arduous activities of the Tennessee State health department. Three of the total of nine members of the rural sanitation general field

force of the United States Public Health Service have been detailed for cooperative duty with the State health department in Tennessee during most of this 5-year period.

Of the 505 counties or districts with local health service under whole-time local (county or district) health officers at the beginning of the present calendar year, 444, or 88 per cent, are receiving financial assistance for the support of their local health service from one or more of the following agencies: The State board of health, the United States Public Health Service, the Rockefeller Foundation.

Without assistance from outside agencies, local governments of rural communities (counties, towns, townships, or districts) in general are not disposed or actually are not able to appropriate adequately for the support of efficient, whole-time, local health service. Some local governments, even when offered such assistance, decline to appropriate their part of the budget for the service; but, according to all the evidence, development in this vitally important field of general welfare could be greatly increased by provision (which could be made at comparatively small governmental cost) to enable the State health departments and the Federal health service to offer to counties now willing to accept, and to those which would soon become willing to accept, adequate technical advice along with financial cooperation on a basis of \$1 of Federal money and \$3 of State money to meet \$4 or more of county money. Substantial financial assistance, as well as stimulation and guidance, from the State health department seems essential for satisfactory progress in the development of whole-time county health service units. In each of the six States in which the most noteworthy progress has been made within the last five years this factor has operated and a comparatively large degree of cooperation in rural health work has been contributed by the United States Public Health Service.

As health conditions in a rural community in one State influence those in other communities in that State and in other States, it seems that all the State governments and the Federal Government may be properly concerned with the development and maintenance of efficient local health service throughout our extensive rural area. The local health service, in doing its work efficiently, necessarily performs duties, such as the collection of morbidity and mortality statistics and the carrying out of measures to prevent the spread of infection in intercounty and interstate traffic, for which the State governments and the Federal Government have a degree of definite responsibility.

There are in the United States about 2,500 counties or districts comparable to counties wholly or in considerable part rural to which

local health service under the direction of whole-time county or local district health officers is applicable and in which such service would be highly advantageous. The number of these units of population in which such service was in operation at the beginning of the calendar years 1920, 1921, 1922, 1923, 1924, 1925, 1926, 1927, 1928, 1929, and 1930, respectively, was 109, 161, 202, 230, 250, 280, 307, 337, 414, 467, and 505. The average annual net gain in this period has been about 40. At such rate of progress about 50 years yet would be required for reasonably adequate whole-time local rural health service to be extended to all communities of the United States in which such service is needed. To augment existing factors or to bring into operation additional factors for the speeding up of production seems critically important. Among such factors to be considered are (1) a considerable increase in the present salary scale and provision of reasonable means of security upon disability from age, injury, or disease incurred in line of duty in order to furnish additional inducement to properly qualified persons to accept and hold positions as whole-time county health officers, and (2) increased facilities for schooling and training of personnel without cost or at very low cost to the trainees. The inducement which would be offered by increased salary is one to be considered by the official agencies in the development of budgets. The inducement which would be offered by pensions and the provision of additional schooling facilities might be considered at this time as a fruitful opportunity for private agencies interested in rural health work.

Experience indicates that the best foundation for rural health service in the United States is the county health department under the direction of the qualified whole-time county health officer. It becomes more and more evident to those with practical experience in the public health field that agencies concerned with the promotion of specialized health activities, such as typhoid fever prevention, hookworm control, tuberculosis prevention, malaria control, venereal disease prevention, or child and maternity hygiene, can perform most effectively and economically by dovetailing their specific activities in with and making them a part of a well-balanced comprehensive program of local official health service under the immediate direction of qualified whole-time local health officers. As it would require, even with adequate financial provisions by the Federal, State, and local governments, at least 5 or 10 years to build up on a satisfactory basis of efficiency with economy whole-time health units to cover the whole rural area of the United States, the well-equipped specialized health agencies have a large opportunity in this field of development.

The present budgets for the support of the health service covering the rural communities and some of the incorporated cities and

towns in the counties and districts designated in the 1930 column of Table 1 total \$7,920,983.64.¹ Of the total local population of 18,327,490 receiving this service, 5,985,487, or 32.66 per cent, are urban. Therefore, about \$5,333,990.38 of the total investment for the local health service in these 505 projects will be expended this year for strictly rural health service.

Efficient, well-balanced, whole-time rural health service throughout this country would cost about \$20,000,000 a year. Apart from the loss in human life, human health, and human happiness, our national economic loss annually in wage earnings and in other items incident to preventable sickness because of lack of reasonably efficient county health service is estimated at over \$1,000,000,000. Money invested for well-directed whole-time county health service yields to the average local tax-paying citizen an annual dividend in dollars and cents ranging under different local conditions from 100 to 3,000 per cent.

All evidence obtained in the course of prolonged studies of the subject supports the claim that the dollar invested for well-directed comprehensive whole-time county health service yields to the public welfare more than any other dollar obtainable by taxation of the people can be made to yield in normal times.

Table 2 presents, by States, the percentage of rural population having local health service under the direction of whole-time local (county or district) health officers at the beginning of 1930.

TABLE 2.—Percentage of rural population having on January 1, 1930, local health service under whole-time local (county or district) health officers

State	Rural population (census 1920)	Rural population with local health service under direction of whole-time health officers	Percentage of rural population with local health service under direction of whole-time health officers
Alabama.....	1,838,857	1,485,729	80.80
Arizona.....	216,635	44,807	20.65
Arkansas.....	1,461,707	489,839	33.51
California.....	1,095,132	395,531	35.12
Colorado.....	480,370	13,913	2.86
Connecticut.....	444,292	11,475	2.58
Delaware.....	102,236	0	0
Florida.....	612,645	14,844	2.4
Georgia.....	2,167,973	636,872	29.38
Idaho.....	312,829	29,511	9.43
Illinois.....	2,082,127	123,124	5.91
Indiana.....	1,447,635	0	0
Iowa.....	1,528,526	0	0
Kansas.....	1,151,293	186,997	16.24
Kentucky.....	1,783,087	768,836	43.12
Louisiana.....	1,170,346	658,879	56.30
Maine.....	408,445	26,136	6.58

¹ Of this amount \$1,342,487 is covered by the budget of one county alone—Los Angeles County, Calif. The population of this county, exclusive of that of the city of Los Angeles, is now very much larger than is indicated by the census figures for 1920, which are used in the calculation in this report. If the Los Angeles County budget were not included, the average budget for the remaining 504 units would be \$13,052.57.

TABLE 2.—Percentage of rural population having on January 1, 1930, local health service under whole-time local (county or district) health officers—Continued

State	Rural population (census 1920)	Rural population with local health service under direction of whole-time health officers	Percentage of rural population with local health service under direction of whole-time health officers
Maryland.....	580,239	346,729	59.76
Massachusetts.....	202,108	16,562	8.19
Michigan.....	1,426,852	119,089	8.35
Minnesota.....	1,335,532	50,898	3.81
Mississippi.....	1,550,497	621,650	40.09
Missouri.....	1,817,152	338,698	18.64
Montana.....	376,878	42,392	11.25
Nebraska.....	891,066	0	0
Nevada.....	62,153	0	0
New Hampshire.....	165,322	0	0
New Jersey.....	880,964	0	0
New Mexico.....	296,890	81,721	27.67
New York.....	1,795,383	194,725	10.85
North Carolina.....	2,068,783	1,087,020	52.55
North Dakota.....	558,633	0	0
Ohio.....	2,082,258	1,234,181	59.27
Oklahoma.....	1,488,803	268,912	18.06
Oregon.....	392,370	128,014	32.63
Pennsylvania.....	3,112,202	0	0
Rhode Island.....	15,217	0	0
South Carolina.....	1,389,737	798,841	57.48
South Dakota.....	534,675	0,943	1.30
Tennessee.....	1,726,059	834,942	48.36
Texas.....	3,150,539	142,592	4.53
Utah.....	233,812	39,527	16.91
Vermont.....	242,452	0	0
Virginia.....	1,635,203	421,054	25.75
Washington.....	607,886	252,056	41.46
West Virginia.....	1,094,604	428,955	39.18
Wisconsin.....	1,387,480	0	0
Wyoming.....	137,054	0	0
Total.....	51,406,017	12,342,003	24.01

The accompanying chart shows, by States, the number of counties or local districts with health service under the direction of whole-time county or local district health officers as of January 1, 1926, 1927, 1928, 1929, and 1930, and the percentage of the rural population of each State receiving such service on January 1, 1930.

Over 76 per cent of our rural population is as yet unprovided with official local health service approaching adequacy. As a consequence of this deficiency, there is a sacrifice of the health and lives and the material resources of many of our people every year—a sacrifice which is needless because preventable, and preventable by measures readily within our means and demonstrated to be in the highest sense economical. The situation is practical and urgent. It should be dealt with cogently, constructively, and promptly.

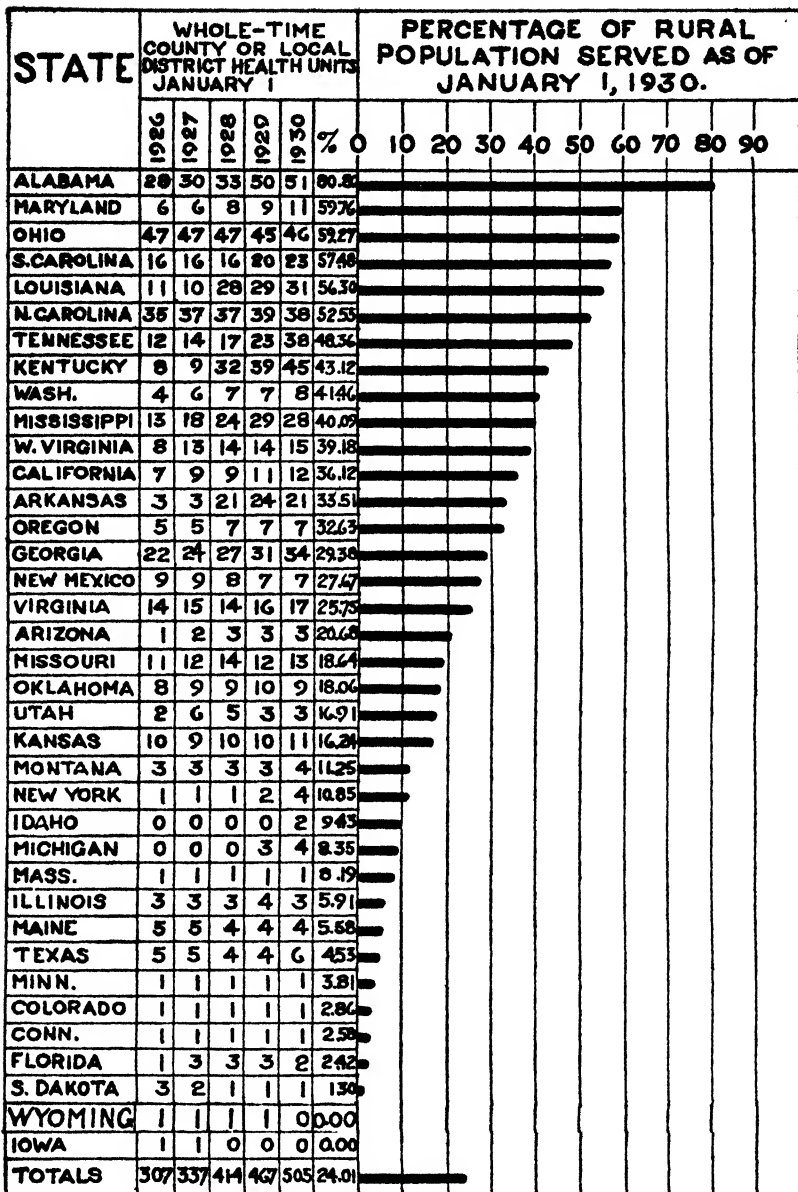


FIGURE 2.—Number of whole-time health units, by States, 1925-1930, and percentage of rural population served on January 1, 1930

SIXTH PAN AMERICAN CONGRESS OF CHILD WELFARE

In accordance with a resolution of the Fifth Pan American Congress of Child Welfare, held in Habana, Cuba, in 1927, a call has been issued for the assembling of the sixth congress in Lima, Peru, July 4-11, 1930.

Due to the increasing interest in child welfare, it is anticipated that this congress will be one of the most important of its kind ever held on this continent. The United States will be adequately represented.

The program of the congress will include the presentation of papers and discussions of various subjects under the following general heads:

- I. Medicine.
- II. Surgery.
- III. Hygiene.
- IV. Social welfare.
- V. Legislation.
- VI. Education.

The following are the honorary and executive officers of the congress:

Honorary president: His Excellency Mr. Augusto B. Leguía, President of Peru.

Honorary vice presidents: Dr. Pedro José Rada y Gamio, Minister of Foreign Relations; Mr. Alfredo Mendiola, Minister of the Interior; Dr. J. Matías León, Minister of Public Instruction.

EXECUTIVE COMMITTEE

President: Dr. Sebastián Lorente, director of health of Peru.

Vocal: Dr. Rómulo Eyzaguirre, chief of the service of demography.

Secretary general: Dr. Carlos Enrique Paz Soldán, professor of hygiene and director of National Child Welfare Institute.

COURT DECISION RELATING TO PUBLIC HEALTH

Death from infection resulting from vaccination held compensable.—(Michigan Supreme Court; *Neudeck v. Ford Motor Co.*, 229 N. W. 438; decided Mar. 6, 1930.) An employee, immediately upon being employed by a company, was ordered by company officials to be vaccinated. He was thereupon vaccinated at the company's plant by a physician employed by the company. As an effect of the said vaccination the employee incurred a streptococcus poisoning and died therefrom. The widow of the employee sought compensation.

In addition to the above facts there was the testimony of the chief surgeon of the company that the company had been requested by the Detroit Board of Health to have vaccinated against smallpox all new

employees and old employees not successfully vaccinated within five years. The company complied with the request as to new employees but not as to old ones.

The supreme court held that the infection from the vaccination was an accident and affirmed the award of compensation which had been made by the State department of labor and industry. The court said in part:

It may be conceded that the vaccination wound was not an accident because it was not an "unforeseen event." But vaccination is usually harmless, and, under the above authorities, infection therefrom is an accident. Of course, no one could testify that he saw a germ enter the wound. The most that could be done would be to tell the condition which would render infection probable or possible. No testimony was introduced to indicate how or when the infection did or could have occurred or its cause. The only cause, time, and place indicated in the record are found in the concession in the statement of facts, that the infection was an effect of the vaccination. This concession ties the accident of infection to the act of vaccination as occurring in the course of the employment.

DEATHS DURING WEEK ENDED APRIL 26, 1930

Summary of information received by telegraph from industrial insurance companies for the week ended April 26, 1930, and corresponding week of 1929. (From the Weekly Health Index, April 30, 1930, issued by the Bureau of the Census, Department of Commerce)

	Week ended Apr. 26, 1930	Corresponding week, 1929
Policies in force.....	75, 763, 029	74, 033, 990
Number of death claims.....	16, 196	13, 594
Death claims per 1,000 policies in force, annual rate.....	11. 1	9. 6

Deaths from all causes in certain large cities of the United States during the week ended April 26, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index, April 30, 1930, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Apr 26, 1930		Annual death rate per 1,000, corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Apr. 26, 1930 ¹
	Total deaths	Death rate ¹		Week ended Apr. 26, 1930	Corresponding week, 1929	
Total (65 cities).....	8, 102	14. 2	13. 1	753	736	1 66
Akron.....	28			5	6	46
Albany ⁴	41	17. 8	19. 5	2	3	44
Atlanta.....	88	18. 0	10. 2	11	4	116
White.....	48			5	1	159
Colored.....	40	(⁵)	(⁹)	6	3	95
Baltimore ⁴	235	14. 8	13. 3	19	12	65
White.....	173			13	10	56
Colored.....	62	(⁵)	(⁹)	6	2	97
Birmingham.....	60	14. 1	14. 1	1	6	9
White.....	30			0	3	0
Colored.....	30	(⁵)	(⁹)	1	3	24
Boston.....	237	15. 5	15. 2	23	24	85
Bridgeport.....	41			5	3	85

Footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended April 26, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929—Continued

City	Week ended Apr. 26, 1930		Annual death rate per 1,000, corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Apr. 26, 1930 ¹
	Total deaths	Death rate ¹		Week ended Apr. 26, 1930	Corresponding week, 1929	
Buffalo.....	156	14.6	16.2	19	23	85
Cambridge.....	37	15.3	12.0	1	2	19
Camden.....	47	18.1	10.8	1	8	18
Canton.....	23	10.3	10.3	2	0	50
Chicago ¹	820	13.5	12.5	75	81	66
Cincinnati.....	121	.....	.....	8	11	47
Cleveland.....	199	10.3	9.3	20	18	60
Columbus.....	399	69.6	15.2	3	8	29
Dallas.....	74	17.7	11.3	2	6	.....
White.....	62	.....	.....	2	3	.....
Colored.....	12	(²)	(²)	0	3	.....
Dayton.....	39	11.0	11.6	3	5	44
Denver.....	66	11.7	11.5	9	5	94
Des Moines.....	35	12.0	10.3	4	2	69
Detroit.....	336	12.7	12.9	42	50	65
Duluth.....	20	8.9	8.5	1	0	27
El Paso.....	40	17.7	20.8	6	5	.....
Erie.....	14	.....	.....	1	2	21
Fall River ¹	28	10.9	10.9	4	3	92
Flint.....	31	10.9	10.5	5	4	58
Fort Worth.....	28	8.6	11.3	3	4	.....
White.....	24	.....	.....	2	4	.....
Colored.....	4	(²)	(²)	1	0	.....
Grand Rapids.....	26	8.3	11.1	0	2	0
Houston.....	72	.....	.....	4	5	.....
White.....	49	.....	.....	3	4	.....
Colored.....	23	(²)	(²)	1	1	.....
Indianapolis.....	100	14.5	14.5	4	10	30
White.....	91	.....	.....	3	6	25
Colored.....	15	(²)	(²)	1	4	54
Jersey City.....	84	13.5	14.1	7	7	61
Kansas City, Kans.....	22	9.7	14.1	2	3	47
White.....	19	.....	.....	2	2	53
Colored.....	3	(²)	(²)	0	1	0
Kansas City, Mo.....	108	14.4	14.3	6	6	47
Knoxville.....	24	11.9	9.9	1	1	23
White.....	17	.....	.....	1	1	26
Colored.....	7	(²)	(²)	0	0	0
Los Angeles.....	251	.....	.....	18	19	55
Louisville.....	76	12.0	12.3	3	2	29
White.....	62	.....	.....	1	1	10
Colored.....	14	(²)	(²)	2	1	145
Lowell.....	35	.....	.....	2	0	47
Lynn.....	21	10.4	12.9	1	2	25
Memphis.....	80	21.9	22.5	11	7	131
White.....	28	.....	.....	2	6	37
Colored.....	52	(²)	(²)	9	1	304
Milwaukee.....	118	11.3	10.6	16	19	81
Minneapolis.....	122	14.0	12.2	12	12	78
Nashville.....	44	16.4	16.1	5	4	77
White.....	24	.....	.....	2	2	41
Colored.....	20	(²)	(²)	3	2	190
New Bedford.....	36	.....	.....	1	1	26
New Haven.....	49	13.6	15.3	3	1	58
New Orleans.....	172	20.9	16.6	12	20	70
White.....	95	.....	.....	2	11	18
Colored.....	77	(²)	(²)	10	9	168
New York.....	1,571	13.6	13.4	194	160	82
Bronx Borough.....	201	11.0	10.2	20	16	47
Brooklyn Borough.....	544	12.3	11.5	58	67	62
Manhattan Borough.....	641	19.1	19.5	98	61	161
Queens Borough.....	138	8.4	8.8	14	11	41
Richmond Borough.....	47	16.3	16.6	4	5	74
Newark, N. J.....	98	10.8	14.8	9	14	47
Oakland.....	44	8.4	10.7	8	2	96
Oklahoma City.....	27	.....	.....	2	2	39
Omaha.....	38	8.9	10.3	0	5	0
Paterson.....	37	13.3	13.3	5	1	87
Philadelphia.....	543	13.7	12.9	54	46	80
Pittsburgh.....	179	13.9	12.5	17	20	62

Footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended April 26, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929—Continued

City	Week ended Apr. 26, 1930		Annual death rate per 1,000, corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Apr. 26, 1930 ⁴
	Total deaths	Death rate ¹		Week ended Apr. 26, 1930	Corresponding week, 1929	
Portland, Oreg.....	78			5	3	61
Providence.....	68	12.4	14.8	7	7	64
Richmond.....	56	15.0	12.9	8	4	119
White.....	31			2	1	45
Colored.....	25	(²)	(²)	6	3	262
Rochester.....	74	11.8	14.6	4	2	35
St. Louis.....	244	15.0	14.1	24	16	78
St. Paul.....	58			6	3	61
Salt Lake City ⁴	38	14.4	15.5	6	5	94
San Antonio.....	79	18.9	16.7	16	11	
San Diego.....	39			4	0	84
San Francisco.....	180	16.0	14.4	6	14	41
Schenectady.....	22	12.3	13.4	3	2	94
Seattle.....	88	12.0	9.7	2	3	20
Somerville.....	32	16.2	8.1	4	1	130
Spokane.....	22	10.5	12.4	3	2	78
Springfield, Mass.....	40	13.9	15.3	5	4	79
Syracuse.....	54	14.1	12.6	5	5	62
Tacoma.....	25	11.8	14.6	0	1	0
Toledo.....	83	13.8	16.2	5	11	46
Trenton.....	40	15.0	17.3	6	6	112
Utica.....	49	24.5	14.5	4	4	114
Washington, D. C.....	167	14.8	12.5	9	12	52
White.....	91			5	5	43
Colored.....	66	(²)	(²)	4	7	71
Waterbury.....	16			2	2	51
Wilmington, Del.....	38	15.4	11.4	4	1	90
Worcester.....	47	12.4	14.2	2	2	26
Yonkers.....	30	12.9	7.3	2	2	48
Youngstown.....	35	10.5	11.4	2	4	31

¹ Annual rate per 1,000 population.

² Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.

³ Data for 73 cities.

⁴ Deaths for week ended Friday.

⁵ In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 13; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 26; Richmond, 32, and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended April 26, 1930, and April 27, 1929

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended April 26, 1930, and April 27, 1929

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Apr. 26, 1930	Week ended Apr. 27, 1929	Week ended Apr. 26, 1930	Week ended Apr. 27, 1929	Week ended Apr. 26, 1930	Week ended Apr. 27, 1929	Week ended Apr. 26, 1930	Week ended Apr. 27, 1929
New England States.								
Maine.....		6	6	1	30	186	0	0
New Hampshire.....		2	6	6	10	41	0	0
Vermont.....		1			80	3	0	0
Massachusetts.....	61	98	5	25	1,533	501	4	10
Rhode Island.....	6	9		1	5	115	0	
Connecticut.....	17	21	5	3	76	484	5	
Middle Atlantic States								
New York.....	143	347	147	114	1,498	1,154	12	24
New Jersey.....	127	105	14	9	1,360	332	7	10
Pennsylvania.....	102	177			1,205	1,094	19	8
East North Central States.								
Ohio.....	65	75	10	34	816	2,195	3	11
Indiana.....	13	8			91	423	7	1
Illinois.....	103	168	9	119	794	1,838	12	13
Michigan.....	57	86	6	5	2,358	796	30	76
Wisconsin.....	18	14	22	15	159	1,314	2	1
West North Central States.								
Minnesota.....	8	23	2	1	272	636	3	2
Iowa.....	7	5			453	32	2	2
Missouri.....	32	33	12	7	108	240	9	14
North Dakota.....	3	16			26	163	2	3
South Dakota.....	1	5			110	31	1	0
Nebraska.....	20	10		1	531	89	0	3
Kansas.....	11	9	1	5	819	379	5	5
South Atlantic States.								
Delaware.....		2	0		16	10	0	0
Maryland.....	20	16	19	15	68	27	2	1
District of Columbia.....	18	25	3	2	30	13	1	1
Virginia.....								
West Virginia.....	10	10	44	13	103	581	2	1
North Carolina.....	19	20	25		24	36	5	1
South Carolina.....	20	13	502	325	90	9	1	0
Georgia.....	4	5	52	28	272	21	2	1
Florida.....	3	11	1		530	48	0	1

¹ New York City only.

¹ Week ended Friday.

*Cases of certain communicable diseases reported by telegraph by State health officers
for weeks ended April 26, 1930, and April 27, 1929—Continued*

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Apr. 26, 1930	Week ended Apr. 27, 1929	Week ended Apr. 26, 1930	Week ended Apr. 27, 1929	Week ended Apr. 26, 1930	Week ended Apr. 27, 1929	Week ended Apr. 26, 1930	Week ended Apr. 27, 1929
East South Central States:								
Kentucky.....					32	39	3	0
Tennessee.....	5	7	43	26	347	78	29	3
Alabama.....	10	17	63	63	148	84	2	0
Mississippi.....	9	3					6	
West South Central States:								
Arkansas.....	5	3	31	9	68	27	7	6
Louisiana.....	26	21	25	47	122	71	5	6
Oklahoma ¹	4	6	19	63	310	60	2	1
Texas.....	29	23	26	72	193	128	0	0
Mountain States:								
Montana.....	3	5			34	149	1	6
Idaho.....					16	3	3	3
Wyoming.....	1	1			39	34	1	4
Colorado.....	15	6			993	6	2	9
New Mexico.....	6	3		3	58	9	1	0
Arizona.....	2		4		68		6	4
Utah ¹	4	2	6	6	298	6	2	9
Pacific States:								
Washington.....	7	4			463	205	12	11
Oregon.....	11	3	29	29	71	291	0	2
California.....	49	46	22	48	2,399	88	5	19

Division and State	Polio myelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Apr. 26, 1930	Week ended Apr. 27, 1929	Week ended Apr. 26, 1930	Week ended Apr. 27, 1929	Week ended Apr. 26, 1930	Week ended Apr. 27, 1929	Week ended Apr. 26, 1930	Week ended Apr. 27, 1929
New England States:								
Maine.....	1	1	24	12	0	0	4	1
New Hampshire.....	0	0	24	10	0	1	0	0
Vermont.....	0	0	11	12	12	7	0	0
Massachusetts.....	0	0	297	266	0	1	4	6
Rhode Island.....	0	0	30	14	0	0	1	0
Connecticut.....	0	1	80	46	0	3	1	1
Middle Atlantic States:								
New York.....	1	1	504	522	1	3	14	12
New Jersey.....	1	0	231	191	0	0	4	3
Pennsylvania.....	2	2	406	390	0	0	6	17
East North Central States:								
Ohio.....	1	2	277	290	151	50	30	4
Indiana.....	0	0	170	234	182	24	3	2
Illinois.....	0	1	473	452	150	43	5	4
Michigan.....	1	2	319	422	52	77	7	9
Wisconsin.....	1	0	187	190	17	5	1	5
West North Central States:								
Minnesota.....	0	1	91	120	3	5	0	1
Iowa.....	0	0	75	98	103	39	0	1
Missouri.....	0	0	99	75	88	15	2	4
North Dakota.....	0	0	31	29	25	17	0	0
South Dakota.....	0	0	30	7	45	18	0	0
Nebraska.....	0	0	78	99	113	36	1	1
Kansas.....	0	1	110	127	104	42	2	1
South Atlantic States:								
Delaware.....	0	0	5	4	0	0	0	0
Maryland ¹	0	0	136	53	0	0	5	4
District of Columbia.....	0	0	10	15	0	0	0	1
Virginia.....					7			
West Virginia.....	0	0	31	13	0	6	15	9
North Carolina.....	0	0	29	24	18	20	2	4
South Carolina.....	0	2	5	2	8	7	10	11
Georgia.....	0	0	21	8	0	0	6	8
Florida.....	0	5	3	5	0	1	2	7

¹ Week ended Friday.

² Figures for 1930 are exclusive of Oklahoma City and Tulsa and for 1929 are exclusive of Oklahoma City only.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended April 26, 1930, and April 27, 1929—Continued

Division and State	Pollomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Apr. 26, 1930	Week ended Apr. 27, 1929	Week ended Apr. 26, 1930	Week ended Apr. 27, 1929	Week ended Apr. 26, 1930	Week ended Apr. 27, 1929	Week ended Apr. 26, 1930	Week ended Apr. 27, 1929
East South Central States:								
Kentucky.....	0	0	22	68	7	9	2	5
Tennessee.....	0	0	65	19	10	7	12	6
Alabama.....	0	3	9	0	9	1	2	15
Mississippi.....	0	1	9	9	27	1	4	6
West South Central States:								
Arkansas.....	0	1	4	6	8	8	4	6
Louisiana.....	1	0	18	41	19	5	22	17
Oklahoma ¹	0	0	31	24	130	65	8	5
Texas.....	0	0	42	67	87	52	9	11
Mountain States:								
Montana.....	0	0	38	35	13	44	4	1
Idaho.....	0	0	3	8	2	10	0	0
Wyoming.....	1	0	1	7	11	22	0	0
Colorado.....	0	0	22	19	4	9	0	0
New Mexico.....	0	0	13	5	11	1	2	4
Arizona.....	0	0	14	5	14	10	5	0
Utah ¹	0	0	8	5	0	10	2	0
Pacific States:								
Washington.....	0	1	31	28	63	56	3	5
Oregon.....	0	1	34	15	30	33	6	1
California.....	3	1	150	437	66	87	8	8

¹ Week ended Friday.

¹ Figures for 1930 are exclusive of Oklahoma City and Tulsa and for 1929 are exclusive of Oklahoma City only.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Menin- gococ- cus menin- gitis	Diph- theria	Influ- enza	Ma- laria	Meas- les	Pei- lagra	Polio- mye- litis	Scarlet fever	Small- pox	Ty- phoid fever
<i>March, 1930</i>										
Alabama.....	20	89	705	142	1,166	31	1	118	27	39
Arkansas.....	28	50	418	175	73	29	0	86	90	6
California.....	34	245	164	5	7,822	2	12	825	410	28
Maryland.....	4	108	193		143	2	1	425	0	19
Mississippi.....	82	46	4,448	2,754	688	606	0	57	21	21
Montana.....	12	6	4		117		1	194	65	10
Nevada.....					30		0		7	
New Mexico.....	12	37	3	3	494	3	0	51	39	5
North Carolina.....	22	138	93		141	74	3	175	82	7
Ohio.....	37	249	138	1	3,098		4	1,750	823	36
Oklahoma ¹	11	77	379	75	697	33	2	131	449	34
Oregon.....		35	259		339		1	179	101	3
South Carolina.....	11	129	4,760	854	97	409	1	60	10	42
Tennessee.....	149	72	642	75	1,329	12	5	404	122	36
Virginia.....	17	133	2,100	21	2,221	35	0	271	38	14
Washington.....	22	31	64		1,200		0	252	390	14
Wisconsin.....	18	69	147		3,246		1	708	118	8

¹ Exclusive of Oklahoma City and Tulsa.

March, 1930			
Chicken pox:	Cases	Lethargic encephalitis:	Cases
Alabama.....	447	Alabama.....	1
Arkansas.....	172	California.....	4
California.....	2,537	Maryland.....	1
Maryland.....	886	Ohio.....	4
Mississippi.....	1,158	Oregon.....	3
Montana.....	53	South Carolina.....	7
Nevada.....	58	Tennessee.....	3
New Mexico.....	115	Washington.....	3
North Carolina.....	1,298	Wisconsin.....	1
Ohio.....	2,162	Mumps:	
Oklahoma ¹	101	Alabama.....	140
Oregon.....	255	Arkansas.....	77
South Carolina.....	448	California.....	3,467
Tennessee.....	305	Maryland.....	87
Virginia.....	723	Mississippi.....	886
Washington.....	541	Montana.....	550
Wisconsin.....	1,427	Nevada.....	6
Conjunctivitis:		New Mexico.....	312
New Mexico.....	8	Ohio.....	984
Dengue.		Oklahoma ¹	82
Mississippi.....	3	Oregon.....	341
South Carolina.....	8	South Carolina.....	230
Diarrhea.		Tennessee.....	207
South Carolina.....	488	Washington.....	603
Diarrhea and enteritis:		Wisconsin.....	1,046
Ohio.....	14	Ophthalmia neonatorum	
Dysentery.		California.....	4
California (amebic).....	2	Maryland.....	1
California (bacillary).....	2	Mississippi.....	19
Maryland.....	2	New Mexico.....	1
Mississippi (amebic).....	34	North Carolina.....	1
Mississippi (bacillary).....	407	Ohio.....	106
New Mexico.....	1	Oklahoma ¹	1
Oklahoma ¹	7	South Carolina.....	16
Tennessee.....	6	Tennessee.....	3
Dysentery and diarrhea		Paratyphoid fever:	
Virginia.....	94	California.....	2
Food poisoning.		Ohio.....	1
California.....	53	South Carolina.....	6
Ohio.....	6	Psittacosis	
German measles:		Maryland.....	4
California.....	186	Puerperal septicemia:	
Maryland.....	32	Mississippi.....	33
Montana.....	5	Ohio.....	5
North Carolina.....	35	Oregon.....	1
Ohio.....	183	Washington.....	4
South Carolina.....	27	Rabies in animals	
Washington.....	137	California.....	102
Granuloma (coccidioidal):		Maryland.....	1
California.....	5	Mississippi.....	8
Hookworm disease		South Carolina.....	13
Arkansas.....	2	Washington.....	1
California.....	1	Rabies in man:	
Mississippi.....	341	California.....	1
South Carolina.....	88	Mississippi.....	1
Impetigo contagiosa:		Rocky Mountain spotted or tick fever:	
Maryland.....	1	Nevada.....	1
Oregon.....	12	Oregon.....	5
Washington.....	12	Scabies.	
Lead poisoning:		Maryland.....	3
Ohio.....	17	Oregon.....	11
Leprosy:		Washington.....	1
California.....	1		

¹ Exclusive of Oklahoma City and Tulsa.

Septic sore throat:	Cases	Undulant fever:	Cases
Maryland.....	15	California.....	8
North Carolina.....	9	Maryland.....	8
Ohio.....	68	Ohio.....	2
Oklahoma ¹	29	South Carolina.....	1
Oregon.....	8	Virginia.....	1
Tennessee.....	4	Washington.....	2
Washington.....	1	Wisconsin.....	4
Tetanus:		Vincent's angina:	
California.....	6	Maryland.....	8
Maryland.....	1	Oklahoma ¹	2
Ohio.....	1	Oregon.....	4
South Carolina.....	5	Tennessee.....	13
Trachoma:		Washington.....	51
Arkansas.....	16	Whooping cough:	
California.....	8	Alabama.....	242
Mississippi.....	28	Arkansas.....	98
Ohio.....	4	California.....	779
Oklahoma ¹	4	Maryland.....	192
Oregon.....	1	Mississippi.....	1,402
Trichinosis:		Montana.....	37
California.....	5	Nevada.....	6
Tularaemia:		New Mexico.....	18
Nevada.....	2	North Carolina.....	1,364
Ohio.....	1	Ohio.....	803
South Carolina.....	2	Oklahoma ¹	95
Tennessee.....	2	Oregon.....	165
Virginia.....	2	South Carolina.....	769
Typhus fever.		Tennessee.....	204
Alabama.....	1	Virginia.....	1,125
North Carolina.....	1	Washington.....	320
Virginia.....	1	Wisconsin.....	947
Wisconsin.....	8		

¹ Exclusive of Oklahoma City and Tulsa.

RECIPROCAL NOTIFICATIONS

Notifications regarding communicable diseases sent during the month of March, 1930, by departments of health of certain States to other State health departments

Disease	California	Illinois	Kansas	Minnesota	New York
Diphtheria.....					1
Gonorrhea.....				3	
Measles.....				1	1
Scarlet fever.....				1	2
Smallpox.....		3			
Syphilis.....			3	2	
Tuberculosis.....	1	5		13	
Typhoid fever.....	1			1	

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 97 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 32,075,000. The estimated population of the 90 cities reporting deaths is more than 29,860,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended April 19, 1930, and April 20, 1929

	1930	1929	Estimated expectancy
<i>Cases reported</i>			
Diphtheria:			
46 States.....	1, 079	1, 324	
97 cities.....	543	816	806
Measles:			
46 States.....	18, 052	13, 508	
97 cities.....	7, 742	5, 434	
Meningococcus meningitis:			
46 States.....	244	296	
97 cities.....	119	150	
Pollomyelitis:			
47 States.....	7	15	
Scarlet fever:			
46 States.....	4, 665	4, 552	
97 cities.....	1, 865	1, 627	1, 359
Smallpox:			
46 States.....	1, 485	1, 022	
97 cities.....	173	57	78
Typhoid fever:			
46 States.....	190	210	
97 cities.....	36	59	32
<i>Deaths reported</i>			
Influenza and pneumonia:			
90 cities.....	983	811	
Smallpox:			
90 cities.....	0	0	

City reports for week ended April 19, 1930

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during non-epidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1921 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND								
Maine:								
Portland	10	1	0		0	2	24	1
New Hampshire:								
Concord	0	0	0		0	0	0	0
Manchester	0	1	0		0	0	0	3
Vermont:								
Barre	2	0	0		0	3	0	1
Burlington	1	0	1		0	0	0	0
Massachusetts:								
Boston	47	36	20		2	480	40	33
Fall River	2	3	5	1	1	1	0	4
Springfield	5	3	6		0	1	5	3
Worcester	18	4	7		0	175	0	3
Rhode Island:								
Pawtucket	3	2	3		0	2	0	0
Providence	8	7	6		0	0	0	5
Connecticut:								
Bridgeport	5	4	1		0	0	0	2
Hartford	15	5	0		0	2	0	9
New Haven	17	1	1		0	7	1	5

City reports for week ended April 19, 1930—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
MIDDLE ATLANTIC								
New York:								
Buffalo.....	10	9	12	—	0	26	18	21
New York.....	240	253	81	21	21	1,332	188	249
Rochester.....	70	8	2	—	0	39	1	4
Syracuse.....	20	3	0	—	1	14	47	2
New Jersey:								
Camden.....	2	8	13	—	0	2	3	5
Newark.....	54	13	51	5	1	484	12	7
Trenton.....	4	3	5	—	1	13	0	3
Pennsylvania:								
Philadelphia.....	72	63	10	1	6	205	70	53
Pittsburgh.....	34	15	9	1	1	301	6	48
Reading.....	15	2	0	—	0	3	2	5
Scranton.....	2	3	0	—	0	0	0	—
EAST NORTH CENTRAL								
Ohio:								
Cincinnati.....	14	7	3	—	2	62	4	12
Cleveland.....	141	24	13	6	0	9	42	19
Columbus.....	20	3	4	1	1	112	6	8
Toledo.....	39	3	1	2	2	107	15	4
Indiana:								
Fort Wayne.....	1	2	0	—	0	0	0	4
Indianapolis.....	38	4	1	—	0	14	11	17
South Bend.....	—	1	—	—	—	—	—	—
Terre Haute.....	8	1	0	—	0	10	0	0
Illinois:								
Chicago.....	113	86	92	4	3	52	76	62
Springfield.....	6	1	0	1	1	3	0	3
Michigan:								
Detroit.....	80	43	33	6	7	1,283	84	33
Flint.....	19	3	3	—	0	62	3	1
Grand Rapids.....	4	3	1	—	4	2	0	3
Wisconsin:								
Kenosha.....	13	0	0	—	0	2	0	1
Madison.....	2	0	1	—	0	41	1	0
Milwaukee.....	130	11	2	2	2	15	55	14
Racine.....	2	2	1	—	0	3	0	0
Superior.....	3	0	0	—	0	2	0	1
WEST NORTH CENTRAL								
Minnesota:								
Duluth.....	2	0	0	—	0	45	0	3
Minneapolis.....	13	13	1	—	1	33	5	6
St. Paul.....	31	9	2	—	2	6	10	7
Iowa:								
Davenport.....	0	1	0	—	—	42	0	—
Des Moines.....	1	1	0	—	—	22	0	—
Sioux City.....	0	1	0	—	—	116	9	—
Waterloo.....	30	0	0	—	—	5	1	—
Missouri:								
Kansas City.....	18	4	1	—	1	10	14	14
St. Joseph.....	1	0	0	—	1	6	0	3
St. Louis.....	62	34	23	2	1	13	38	—
North Dakota:								
Fargo.....	1	0	0	—	0	2	31	0
Grand Forks.....	0	0	0	—	—	0	0	—
South Dakota:								
Aberdeen.....	26	0	0	—	—	0	5	—
Sioux Falls.....	0	0	0	—	—	12	0	—
Nebraska:								
Omaha.....	12	2	16	—	6	92	0	13
Kansas:								
Topeka.....	3	1	0	—	6	145	11	1
Wichita.....	7	1	2	—	0	54	21	5
SOUTH ATLANTIC								
Delaware:								
Wilmington.....	3	2	1	—	0	4	0	2
Maryland:								
Baltimore.....	170	23	14	7	2	26	9	26
Cumberland.....	0	0	0	—	0	0	0	3
Frederick.....	0	0	0	—	0	6	0	1

City reports for week ended April 19, 1930—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneu- monia, deaths reported
		Cases, estimated expect- ancy	Cases reported	Cases reported	Deaths reported			
SOUTH ATLANTIC—CON.								
District of Columbia: Washington.....	21	12	5	2	2	26	0	17
Virginia:								
Lynchburg.....	6	1	0	-----	0	89	8	5
Norfolk.....	6	1	2	-----	0	1	37	6
Richmond.....	4	2	2	-----	2	7	2	5
Roanoke.....	0	0	2	-----	0	252	0	2
West Virginia:								
Charleston.....	13	0	0	4	1	6	1	5
Wheeling.....	1	1	1	-----	0	5	0	5
North Carolina:								
Raleigh.....	5	0	0	-----	0	0	0	2
Wilmington.....	11	0	1	-----	0	0	0	3
Winston-Salem.....	4	0	1	-----	0	1	8	3
South Carolina:								
Charleston.....	1	0	0	15	0	0	3	6
Columbia.....	0	0	2	-----	0	0	7	1
Georgia:								
Atlanta.....	13	2	3	24	1	70	37	8
Brunswick.....	0	0	0	-----	0	2	0	0
Savannah.....	0	0	0	3	2	0	0	3
Florida:								
Miami.....	3	1	2	-----	0	0	0	1
St. Petersburg.....		0	-----	-----	1	-----	-----	0
Tampa.....	9	1	0	-----	1	56	23	1
EAST SOUTH CENTRAL								
Kentucky:								
Covington.....	2	1	2	-----	0	0	0	2
Tennessee:								
Memphis.....	5	3	1	-----	0	2	8	5
Nashville.....	4	0	0	-----	4	8	0	12
Alabama:								
Birmingham.....	12	0	0	5	4	5	4	10
Mobile.....	2	0	0	-----	1	11	0	3
Montgomery.....	4	0	0	2	-----	24	0	-----
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith.....	3	0	0	-----	-----	34	0	-----
Little Rock.....	7	1	1	-----	0	3	0	0
Louisiana:								
New Orleans.....	3	7	35	4	5	17	0	9
Shreveport.....	8	0	0	-----	0	6	9	3
Oklahoma:								
Oklahoma City.....	1	1	1	3	0	77	3	2
Tulsa.....	9	1	0	-----	-----	127	0	-----
Texas:								
Dallas.....	10	4	5	-----	1	83	4	6
Fort Worth.....	10	2	3	-----	1	20	0	2
Galveston.....	0	0	1	-----	0	0	0	2
Houston.....	2	3	13	-----	0	1	0	8
San Antonio.....	6	3	4	-----	1	0	0	6
MOUNTAIN								
Montana:								
Billings.....	0	0	0	-----	0	2	5	0
Great Falls.....	1	0	0	-----	0	2	12	1
Helena.....	0	0	0	-----	0	2	4	0
Missoula.....	0	0	0	-----	0	0	1	4
Idaho:								
Boise.....	0	0	0	-----	0	0	0	0
Colorado:								
Denver.....	34	9	1	-----	1	615	17	12
Pueblo.....	13	1	0	-----	0	4	111	0
New Mexico:								
Albuquerque.....	7	0	0	-----	0	19	4	1
Arizona:								
Phoenix.....	1	0	0	-----	0	29	0	2
Utah:								
Salt Lake City.....	7	3	0	-----	0	145	9	2
Nevada:								
Reno.....	0	0	0	-----	0	-----	0	-----

City reports for week ended April 19, 1930—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneu- monia, deaths reported
		Cases, estimated expect- ancy	Cases reported	Cases reported	Deaths reported			
PACIFIC								
Washington:								
Seattle.....	27	2	1			347	21	
Spokane.....	26	3	1			0	0	
Tacoma.....	8	1	1		0	77	1	2
Oregon:								
Portland.....	17	7	2		1	21	21	5
Salem.....	2	0	1		0	0	5	0
California:								
Los Angeles.....	52	24	20	11	1	315	22	9
Sacramento.....	1	2	0		0	15	10	2
San Francisco.....	32	17	5	3	0	125	22	1

Division, State, and city	Scarlet fever		Smallpox			Tuber- culis, deaths re-ported	Typhoid fever			Whoop- ing cough, cases re-ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
NEW ENGLAND											
Maine:											
Portland.....	3	1	0	0	0	2	0	0	0	1	19
New Hampshire:											
Concord.....	0	0	0	0	0	0	0	0	0	0	9
Manchester.....	4	0	0	0	0	0	0	0	0	0	7
Vermont:											
Barre.....	0	0	0	1	0	1	0	0	0	1	5
Burlington.....	1	1	1	0	0	0	0	0	0	0	10
Massachusetts:											
Boston.....	71	28	0	0	0	18	2	1	0	28	261
Fall River.....	4	5	0	0	0	1	0	1	0	2	41
Springfield.....	9	11	0	0	0	0	0	0	0	9	29
Worcester.....	8	4	0	0	0	4	0	0	0	24	59
Rhode Island:											
Pawtucket.....	1	2	0	0	0	0	0	0	0	5	22
Providence.....	10	17	0	0	0	2	0	0	0	9	75
Connecticut:											
Bridgeport.....	11	13	0	0	0	2	0	0	0	2	20
Hartford.....	4	10	0	0	0	1	0	1	0	1	45
New Haven.....	8	15	0	0	0	1	0	0	0	6	49
MIDDLE ATLANTIC											
New York:											
Buffalo.....	27	37	0	0	0	11	0	0	0	14	167
New York.....	312	267	0	0	0	123	9	2	0	43	1,023
Rochester.....	13	9	0	0	0	3	0	0	0	2	98
Syracuse.....	11	25	0	0	0	1	0	0	0	42	50
New Jersey:											
Camden.....	6	1	0	0	0	0	0	1	0	1	28
Newark.....	34	43	0	0	0	6	1	0	0	20	131
Trenton.....	4	9	0	0	0	5	0	1	1	1	36
Pennsylvania:											
Philadelphia.....	97	141	0	0	0	38	2	0	0	11	487
Pittsburgh.....	28	12	0	0	0	9	1	1	0	22	205
Reading.....	6	4	0	0	0	1	0	0	0	0	34
Scranton.....	2	1	0	0	0	0	0	0	0	0	
EAST NORTH CENTRAL											
Ohio:											
Cincinnati.....	17	27	1	3	0	10	0	0	0	0	139
Cleveland.....	33	51	0	0	0	22	0	3	0	75	242
Columbus.....	8	3	0	3	0	2	0	0	0	10	87
Toledo.....	13	14	0	11	0	3	0	0	0	6	87
Indiana:											
Fort Wayne.....	5	5	2	3	0	0	0	0	0	0	20
Indianapolis.....	9	33	7	9	0	0	0	0	1	10	
South Bend.....	4		0								
Terre Haute.....	2	6	1	0	0	1	0	0	0	1	22

City reports for week ended April 19, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
EAST NORTH CEN- TRAL—CON.											
Illinois:											
Chicago.....	118	280	2	13	0	47	1	1	0	65	690
Springfield.....	4	3	0	0	0	1	1	0	0	3	26
Michigan:											
Detroit.....	107	135	1	4	0	29	1	0	0	70	313
Flint.....	8	14	2	2	0	1	0	0	0	15	21
Grand Rapids.....	9	16	1	0	0	0	0	0	0	7	35
Wisconsin:											
Kenosha.....	2	3	1	0	0	0	0	0	0	8	10
Madison.....	3	3	0	0	0	0	0	0	0	16	9
Milwaukee.....	29	24	1	0	0	5	0	0	1	42	115
Racine.....	4	3	0	0	0	1	0	0	0	20	13
Superior.....	3	4	0	0	0	1	0	0	0	0	12
WEST NORTH CENTRAL											
Minnesota:											
Duluth.....	7	1	0	5	0	1	0	0	0	9	24
Minneapolis.....	47	15	3	0	0	1	1	0	0	0	112
St. Paul.....	27	13	0	0	0	6	1	0	0	11	50
Iowa:											
Davenport.....	2	1	0	24	-----	-----	0	0	-----	8	-----
Des Moines.....	6	20	1	16	-----	-----	0	0	-----	0	24
Sioux City.....	2	1	1	3	-----	-----	0	0	-----	5	-----
Waterloo.....	2	1	0	25	-----	-----	0	0	-----	3	-----
Missouri:											
Kansas City.....	16	24	1	1	0	7	0	0	0	14	126
St. Joseph.....	3	7	1	0	0	0	0	0	0	0	37
St. Louis.....	35	92	2	14	0	11	1	2	1	13	222
North Dakota:											
Fargo.....	1	0	0	1	0	0	0	1	0	2	2
Grand Forks.....	1	1	0	0	-----	-----	0	0	-----	0	-----
South Dakota:											
Aberdeen.....	1	0	0	31	-----	-----	0	0	-----	18	-----
Sioux Falls.....	1	3	0	2	-----	-----	0	0	-----	0	7
Nebraska:											
Omaha.....	3	7	4	16	0	3	0	0	0	1	71
Kansas:											
Topeka.....	4	12	1	4	0	1	0	0	0	15	32
Wichita.....	3	16	2	3	0	0	0	1	0	12	23
SOUTH ATLANTIC											
Delaware:											
Wilmington.....	5	10	0	0	0	1	0	0	0	0	25
Maryland:											
Baltimore.....	31	89	0	0	0	18	2	2	0	18	227
Cumberland.....	1	1	0	0	0	0	0	0	0	0	16
Frederick.....	0	0	0	0	0	0	0	0	0	0	4
District of Colum- bia:											
Washington.....	24	23	1	0	0	16	0	1	0	5	167
Virginia:											
Lynchburg.....	1	0	0	0	0	0	0	0	0	12	21
Norfolk.....	2	0	1	0	0	2	0	2	0	1	-----
Richmond.....	3	10	0	0	0	1	0	2	0	4	48
Roanoke.....	1	0	0	1	0	1	0	0	0	9	21
West Virginia:											
Charleston.....	0	0	0	0	0	0	0	4	0	12	24
Wheeling.....	2	1	0	0	0	1	0	0	0	1	20
North Carolina:											
Raleigh.....	0	0	0	0	0	0	0	0	0	1	23
Wilmington.....	0	0	1	0	0	2	0	0	0	24	19
Winston-Salem.....	1	0	2	0	0	0	0	0	0	4	8
South Carolina:											
Charleston.....	0	1	1	1	0	2	0	0	0	1	31
Columbia.....	0	0	1	0	0	2	0	0	0	17	16
Georgia:											
Atlanta.....	4	14	3	0	0	6	0	0	0	3	72
Brunswick.....	0	0	0	0	0	1	0	0	0	0	7
Savannah.....	0	1	1	0	0	2	0	0	0	0	33
Florida:											
Miami.....	1	5	2	0	0	0	1	0	0	0	17
St. Petersburg.....	0	-----	0	-----	0	0	0	-----	0	-----	23
Tampa.....	0	1	0	0	0	3	0	2	0	1	25

City reports for week ended April 19, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
EAST SOUTH CENTRAL											
Kentucky:											
Covington.....	2	3	0	0	0	1	0	0	0	0	14
Tennessee:											
Memphis.....	7	13	1	1	0	3	0	0	0	1	96
Nashville.....	2	2	0	2	0	10	0	0	0	1	64
Alabama:											
Birmingham.....	2	5	3	0	0	3	0	0	0	6	88
Mobile.....	0	0	1	0	0	2	0	1	0	0	32
Montgomery.....	0	1	1	0			0			0	
WEST SOUTH CEN- TRAL											
Arkansas:											
Fort Smith.....	1	1	0	0			0	0		2	
Little Rock.....	0	1	0	1	0	1	0	0	0	0	
Louisiana:											
New Orleans.....	7	13	0	1	0	12	2	0	0	0	167
Shreveport.....	1	1	1	0	0	1	0	0	0	6	26
Oklahoma:											
Oklahoma City.....	1	26	3	21	0	3	0	0	0	0	40
Tulsa.....	2	4	2	0			0	0		14	
Texas:											
Dallas.....	4	0	2	1	0	3	1	1	0	2	50
Fort Worth.....	1	4	5	2	0	1	0	0	0	0	32
Galveston.....	1	2	0	0	0	0	1	0	0	0	13
Houston.....	1	2	1	10	0	11	0	1	0	1	57
San Antonio.....	1	4	0	7	0	8	0	0	0	6	88
MOUNTAIN											
Montana:											
Billings.....	1	0	0	0	0	0	0	0	0	0	12
Great Falls.....	0	25	0	0	0	0	0	0	0	0	9
Helena.....	0	1	0	0	0	0	0	0	0	3	3
Missoula.....	1	1	1	3	0	0	0	2	0	0	7
Idaho:											
Boise.....	2	0	1	0	0	0	0	0	0	1	7
Colorado:											
Denver.....	11	3	1	0	0	9	0	0	0	32	81
Pueblo.....	1	1	0	0	0	1	0	0	0	3	8
New Mexico:											
Albuquerque ¹	0	2	0	0	0	2	0	0	0	0	11
Arizona:											
Phoenix.....	1	1	0	2	0	1	0	0	0	0	14
Utah:											
Salt Lake City.....	2	7	1	0	0	2	1	0	0	28	22
Nevada:											
Reno.....	0	2	0	0	0	0	0	0	0	0	1
PACIFIC											
Washington:											
Seattle.....	7	11	3	2			1			5	
Spokane.....	5	1	8	12			0	0		24	
Tacoma.....	2	3	3	7	0	0	0	0	0	9	25
Oregon:											
Portland.....	5	4	9	16	0	1	0	1	0	32	71
Salem.....	0	0	1	0	0	0	0	0	0	4	
California:											
Los Angeles.....	29	32	4	10	0	19	1	2	0	17	246
Sacramento.....	1	3	1	1	0	3	1	1	1	0	
San Francisco.....	20	21	1	3	0	11	1	0	0	7	173

¹ The report of 3 cases of smallpox at Albuquerque, N. Mex., during the week ended Mar. 15, published in PUBLIC HEALTH REPORTS of Apr. 4, 1930, was an error, later information showing that no cases of smallpox occurred there during that week.

City reports for week ended April 19, 1930—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Massachusetts:									
Boston.....	1	4	0	0	0	0	0	0	0
Connecticut:									
Hartford.....	0	1	0	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
New York City.....	13	8	3	2	0	0	1	2	1
New Jersey:									
Newark.....	1	0	0	0	0	0	0	0	0
Pennsylvania:									
Philadelphia.....	5	0	0	0	0	0	0	0	0
Pittsburgh.....	4	2	0	0	0	0	0	0	1
EAST NORTH CENTRAL									
Ohio:									
Cleveland.....	5	2	0	0	0	0	0	0	0
Indiana:									
Indianapolis.....	7	4	0	0	0	0	0	0	0
Terre Haute.....	1	0	0	0	0	0	0	0	0
Illinois:									
Chicago.....	8	9	0	0	0	0	0	0	0
Michigan:									
Detroit.....	23	3	0	0	0	0	0	1	1
Flint.....	2	2	0	0	0	0	0	0	0
Wisconsin:									
Madison.....	0	1	0	0	0	0	0	0	0
Milwaukee.....	1	0	0	0	0	0	0	0	0
Racine.....	2	2	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
Minneapolis.....	1	0	0	0	0	0	0	0	0
St. Paul.....	1	0	0	0	0	0	0	0	0
Iowa:									
Waterloo.....	1	0	0	0	0	0	0	0	0
Missouri:									
Kansas City.....	3	0	0	0	0	0	0	0	0
St. Joseph.....	2	1	0	0	0	0	0	0	0
St. Louis.....	5	4	0	0	0	0	0	0	0
SOUTH ATLANTIC¹									
Maryland:									
Baltimore.....	2	1	0	0	0	0	0	0	0
North Carolina:									
Wilmington.....	0	0	0	0	0	1	0	0	0
South Carolina:									
Charleston.....	0	0	0	0	3	1	0	0	0
Georgia:									
Atlanta.....	0	1	0	0	0	0	0	0	0
Savannah.....	0	0	0	0	1	1	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis.....	18	7	0	0	0	1	0	0	0
Nashville.....	1	1	0	0	0	0	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Little Rock.....	0	1	0	0	0	0	0	0	0
Louisiana:									
New Orleans.....	4	2	0	0	3	1	0	0	0
Shreveport.....	0	0	0	0	0	1	0	0	0
Texas:									
San Antonio.....	1	0	0	0	0	0	0	0	0

¹ Typhus fever, 2 cases and 1 death: 1 case at Wilmington, N. C., 1 case at Savannah, Ga., and 1 death at Tampa, Fla.

City reports for week ended April 19, 1930—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
MOUNTAIN									
Montana:									
Great Falls.....	1	1	0	0	0	0	0	0	0
Colorado:									
Denver.....	1	1	0	0	0	0	0	0	0
Utah:									
Salt Lake.....	0	2	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle.....	1	0	0	0	0	0	0	0	0
Oregon:									
Portland.....	0	1	1	0	0	0	0	0	0
California:									
Los Angeles.....	3	0	0	0	0	0	1	0	0
Sacramento.....	1	0	0	0	0	0	0	0	0
San Francisco.....	0	0	0	0	0	1	0	0	0

The following table gives the rates per 100,000 population for 98 cities for the 5-week period ended April 19, 1930, compared with those for a like period ended April 20, 1929. The population figures used in computing the rates are approximate estimates, authoritative figures for many of the cities not being available. The 98 cities reporting cases have an estimated aggregate population of more than 32,000,000. The 91 cities reporting deaths have more than 30,500,000 estimated population.

Summary of weekly reports from cities, March 16 to April 19, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929¹

DIPHTHERIA CASE RATES

	Week ended—									
	Mar. 22, 1930	Mar. 23, 1929	Mar. 29, 1930	Mar. 30, 1929	Apr. 5, 1930	Apr. 6, 1929	Apr. 12, 1930	Apr. 13, 1929	Apr. 19, 1930	Apr. 20, 1929
98 cities	100	135	84	128	^a 81	131	95	124	^a 88	135
New England.....	60	119	51	101	^a 68	135	75	117	109	141
Middle Atlantic.....	102	180	84	187	78	190	97	166	87	198
East North Central.....	133	142	115	119	108	125	115	126	^a 97	122
West North Central.....	72	131	63	139	51	75	87	83	85	112
South Atlantic.....	82	60	64	66	59	82	73	71	59	66
East South Central.....	40	41	54	41	34	27	7	75	20	7
West South Central.....	146	118	134	118	^a 161	114	164	122	220	99
Mountain.....	86	35	43	44	^a 27	44	77	61	9	70
Pacific.....	52	68	40	29	59	58	59	65	43	58

¹ The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1930 and 1929, respectively.

^a New Haven, Conn., San Antonio, Tex., and Great Falls, Mont., not included.

^b South Bend, Ind., not included.

^c New Haven, Conn., not included.

^d San Antonio, Tex., not included.

^e Great Falls, Mont., not included.

Summary of weekly reports from cities, March 18 to April 19, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929—Continued

MEASLES CASE RATES

	Week ended—									
	Mar. 22, 1930	Mar. 23, 1929	Mar. 23, 1930	Mar. 30, 1929	Apr. 5, 1930	Apr. 6, 1929	Apr. 12, 1930	Apr. 13, 1929	Apr. 19, 1930	Apr. 20, 1929
98 cities.....	793	757	999	716	1,041	839	1,222	824	1,258	896
New England.....	944	863	1,023	467	1,443	521	1,431	638	1,491	498
Middle Atlantic.....	868	179	644	154	832	174	1,019	160	1,156	146
East North Central.....	843	1,895	861	1,892	807	1,836	913	1,946	1,096	2,085
West North Central.....	973	1,882	890	1,784	842	1,963	1,174	1,657	968	2,124
South Atlantic.....	564	451	637	414	793	650	970	464	998	760
East South Central.....	1,457	137	1,093	89	594	89	871	130	537	55
West South Central.....	867	190	841	95	836	248	773	232	558	125
Mountain.....	2,815	766	3,424	409	4,883	618	7,475	192	6,617	209
Pacific.....	2,100	239	2,549	232	2,843	273	2,402	319	2,100	377

SCARLET FEVER CASE RATES

98 cities.....	323	345	315	318	1,308	290	327	270	1,303	268
New England.....	341	364	332	391	1,418	341	321	317	368	342
Middle Atlantic.....	310	306	315	264	308	244	296	234	276	234
East North Central.....	422	495	386	453	281	426	428	373	1,388	418
West North Central.....	328	292	300	310	266	275	391	242	359	216
South Atlantic.....	262	159	249	167	263	94	282	122	277	90
East South Central.....	202	308	263	267	162	212	148	185	162	144
West South Central.....	116	270	120	274	188	270	116	229	123	285
Mountain.....	343	113	446	78	1,165	104	326	165	343	70
Pacific.....	236	367	239	311	196	314	253	374	166	372

SMALLPOX CASE RATES

98 cities.....	25	11	23	16	24	11	29	12	28	9
New England.....	0	7	2	11	0	2	2	2	2	0
Middle Atlantic.....	0	0	0	0	0	0	0	0	0	0
East North Central.....	20	12	18	17	30	15	23	20	23	11
West North Central.....	95	12	97	25	85	17	146	8	137	10
South Atlantic.....	2	0	7	13	2	4	9	4	4	2
East South Central.....	7	7	20	41	0	7	13	7	20	0
West South Central.....	52	99	49	91	22	76	30	76	75	11
Mountain.....	34	44	26	44	109	26	60	78	26	44
Pacific.....	120	14	83	22	83	17	104	10	83	60

TYPHOID FEVER CASE RATES

98 cities.....	8	7	8	10	5	5	5	12	6	10
New England.....	0	7	2	4	5	4	0	9	7	7
Middle Atlantic.....	7	6	15	5	3	2	1	7	2	8
East North Central.....	1	4	3	17	2	7	1	11	3	4
West North Central.....	9	6	4	8	2	4	4	25	8	10
South Atlantic.....	13	6	5	13	4	4	20	13	26	24
East South Central.....	94	27	34	27	34	7	20	21	7	7
West South Central.....	11	8	7	19	13	8	7	42	7	42
Mountain.....	17	9	0	0	18	0	43	0	17	0
Pacific.....	12	19	2	0	7	7	5	7	9	10

* New Haven, Conn., San Antonio, Tex., and Great Falls, Mont., not included.

* South Bend, Ind., not included.

* New Haven, Conn., not included.

* San Antonio, Tex., not included.

* Great Falls, Mont., not included.

Summary of weekly reports from cities, March 16 to April 19, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929—Continued*

INFLUENZA DEATH RATES

	Week ended—									
	Mar. 22, 1930	Mar. 23, 1929	Mar. 29, 1930	Mar. 30, 1929	Apr. 5, 1930	Apr. 6, 1929	Apr. 12, 1930	Apr. 13, 1929	Apr. 19, 1930	Apr. 20, 1929
91 cities.....	16	27	14	18	* 13	20	17	15	* 15	15
New England.....	2	4	9	4	* 7	11	7	7	7	9
Middle Atlantic.....	14	23	11	12	15	16	21	14	15	10
East North Central.....	9	20	11	16	10	18	8	15	* 13	14
West North Central.....	12	30	6	18	9	27	9	6	18	18
South Atlantic.....	26	30	15	22	7	17	24	17	20	21
East South Central.....	88	90	110	90	44	75	52	30	66	15
West South Central.....	27	74	34	35	* 32	47	27	31	27	51
Mountain.....	60	78	51	52	* 27	44	26	17	9	9
Pacific.....	9	31	3	16	0	19	15	22	3	13

PNEUMONIA DEATH RATES

91 cities.....	165	168	167	157	* 164	140	169	139	* 153	127
New England.....	199	186	202	171	* 164	101	171	126	146	114
Middle Atlantic.....	168	190	197	180	194	178	195	161	190	134
East North Central.....	150	141	118	132	146	135	126	126	* 113	119
West North Central.....	121	189	133	150	115	147	148	114	154	109
South Atlantic.....	203	185	194	159	179	144	211	165	185	146
East South Central.....	214	172	258	172	177	142	228	164	236	157
West South Central.....	214	78	176	125	* 157	137	195	90	130	72
Mountain.....	189	165	172	131	* 191	122	180	113	163	122
Pacific.....	95	163	114	151	77	126	89	94	46	151

* New Haven, Conn., San Antonio, Tex., and Great Falls, Mont., not included.

* South Bend, Ind., not included.

* New Haven, Conn., not included.

* San Antonio, Tex., not included.

* Great Falls, Mont., not included.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Week ended April 12, 1930.—The Department of Pensions and National Health reports cases of certain communicable diseases in Canada for the week ended April 12, 1930, as follows:

Province	Cerebro-spinal fever	Influenza	Poliomy-elitis	Small-pox	Typhoid fever
Prince Edward Island.....			2		
Nova Scotia.....		5			
New Brunswick.....					1
Quebec.....					2
Ontario.....	6	9		17	2
Manitoba.....				2	
Saskatchewan.....				3	
Alberta.....	1			3	
British Columbia.....				8	
Total.....	7	14	2	33	5

Quebec—Communicable diseases—Week ended April 12, 1930.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended April 12, 1930, as follows:

Disease	Cases	Disease	Cases
Chicken pox.....	63	Mumps.....	104
Diphtheria.....	30	Puerperal septicæmia.....	1
Erysipelas.....	6	Scarlet fever.....	81
German measles.....	60	Tuberculosis.....	65
Influenza.....	3	Typhoid fever.....	2
Measles.....	126	Whooping cough.....	64

MEXICO

Vera Cruz—Communicable diseases—Six weeks ended April 19, 1930.—During the six weeks ended April 19, 1930, deaths from certain communicable diseases were reported in Vera Cruz, Mexico, as follows:

Disease	Week ended—						Total
	Mar. 15, 1930	Mar. 22, 1930	Mar. 29, 1930	Apr. 5, 1930	Apr. 12, 1930	Apr. 19, 1930	
Cancer.....	1	1		2		1	5
Cerebrospinal meningitis.....		3		1			4
Dysentery.....						1	1
Epilepsy.....	1						1
Gastrointestinal disorders.....	5	11	3	3	8	7	37
Malaria.....			2		1		3
Pneumonia.....	1	2		2	1		6
Tetanus.....			1		2	1	4
Tuberculosis.....	7	7	3	3	7	7	34
Typhoid fever.....			1		1		2

PANAMA CANAL ZONE

Communicable diseases—March, 1930.—During the month of March, 1930, certain communicable diseases, including imported cases, were reported in the Panama Canal Zone and terminal cities as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Cerebrospinal meningitis.....	2	1	Measles.....	30	-----
Chicken pox.....	76	-----	Pneumonia.....	-----	23
Diphtheria.....	3	-----	Scarlet fever.....	1	-----
Dysentery (amebic).....	1	-----	Tuberculosis.....	-----	22
Dysentery (bacillary).....	7	-----	Typhoid fever.....	2	-----
Malaria.....	78	1	Whooping cough.....	8	1

TRINIDAD (BRITISH WEST INDIES)

Port of Spain—Vital statistics (comparative)—March, 1930.—The following statistics for the month of March for the years 1929 and 1930 are taken from a report issued by the Public Health Department of Port of Spain, Trinidad:

	March, 1929	March, 1930
Number of births.....	164	183
Birth rate per 1,000 population.....	29.1	32.0
Number of deaths.....	123	107
Death rate per 1,000 population.....	21.8	18.7
Deaths under 1 year.....	24	12
Infant mortality rate per 1,000 births.....	146.3	65.6

YUGOSLAVIA

Communicable diseases—March, 1930.—During the month of March, 1930, certain communicable diseases were reported in Yugoslavia, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax.....	34	5	Measles.....	2,051	38
Cerebrospinal meningitis.....	20	9	Polioomyelitis.....	1	-----
Diphtheria and croup.....	553	105	Scarlet fever.....	1,076	184
Dysentery.....	30	-----	Tetanus.....	11	4
Erysipelas.....	161	12	Typhoid fever.....	233	21
Leprosy.....	1	-----	Typhus fever.....	46	2

PLAGUE

Place	Week ended—															
	Nov. 1929				December, 1929				January, 1930				February, 1930			
	Oct. 20-29, 1929	Nov. 10-19, 1929	Nov. 20-29, 1929	Dec. 1-10, 1929	Dec. 11-20, 1929	Dec. 21-30, 1929	Jan. 1-10, 1930	Jan. 11-20, 1930	Jan. 21-30, 1930	Feb. 1-10, 1930	Feb. 11-20, 1930	Feb. 21-28, 1930	Mar. 1-10, 1930	Mar. 11-20, 1930	Mar. 21-30, 1930	Apr. 1-10, 1930
Argentina: Andalgala, ¹ Rosario.....																
Plague-infected rats																
Santa Fe.....																
Tucuman.....																
Villa La.....																
Azores: Ponta Delgada.....																
Belgian Congo: Djugu.....																
Brazil: Rio de Janeiro.....																
Seo Paulo, ¹ British East Africa (see also table below): Tanganyika.....																
Uganda.....																
Ceylon: Colombo.....																
Plague-infected rats																
Chile: Antofagasta.....																
Dutch East Indies: Batavia and West Java.....																
Plague-infected rats																
Celebes—Makassar.....																
Plague-infected rodents																
East Java and Madura.....																
Java and Madura.....																
Surabaya.....																

¹ On Mar. 11, 3 deaths from bubonic plague were reported in Andalgala, Catamarca Province, Argentina, since Feb. 5, 1930.
² 21 cases of plague with 8 deaths were reported Jan. 29, 1930, in the State of Sao Paulo, Brazil; 15 of these cases were in the city of Sao Paulo.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[O indicates cases; D, deaths; P, present]

Place	Week ended—													
	January, 1930				February, 1930				March, 1930				April, 1930	
	18	25	1	8	15	22	1	8	15	22	29	5	12	19
China—Continued.														
Shanghai—														
Foreigners only—														
Including natives—														
Swallow	O	4	5	7										
Tientsin	D	1	2	6										
Chosen (see table below).	D	1	1	2										
Colombia:														
Barranquilla														
Buenaventura	O	1	4	2										
Costa Rica: San Jose	O	50	56	1										
Curacao (Alastrim)	O		1											
Dutch East Indies:														
Belawan Deli	O	4	1	1										
Borneo—Samarinda	O	8												
Java—														
Batavia and West Java	O	11	37	17										
East Java and Madura	O	7	8	10										
Sanggul Islands	D	13	13											
Sumatra	D	10	105	17										
Sumatra	D	4	8	8										
Egypt:														
Alexandria	O		5											
Port Said	O													
Great Britain:														
England and Wales	O	643	994	1,005	414	313	354	374	322	376	439	368	449	457
Ashes under Lyme	O	1	6	3	2		1	1	1	3	8	4	2	4
Bradford	O	13	20	3			1	4	2		7	11	5	4
Cardiff	O	1	1											
Leeds	O													
London	O	174	321	480	168	127	157	155	138	193	163	165	210	191

London and Great Towns.....	442	783	799	208	239	281	283	255	312	292	297	323	243	370	333	
Newcastle-on-Tyne.....		1		1	1			1		4		1		1	1	
Stoke-on-Trent.....		1	12	3			3	2	10	20	9	18	23	40	41	
Greece: Patras.....																
Hadjia.....																
India.....																
Bombay.....	7	6	11	11						8,084						
Calcutta.....	3,337	7,044	12,739	4,765	6,461	7,563	7,736	9,100	9,001	9,068	1,793					
Cochin.....	12	12	3,730	1,253	1,339	1,731	1,841	1,622	2,068	1,793	196	223	187			
Karachi.....	18	14	57	83	74	86	97	112	155	173	117	123	154			
Madras.....	6	54	88	41	25	54	55	57	74	98	160	106	155	100		
Moulmein.....	4	39	62	28	28	40	34	63	73	70	116	77	138	90		
Nagapatam.....	94	357	234	58	61	58	57	62	17	31	78	87	114	11	7	61
Rangoon.....	11	72	20	6	5	11	5	6	15	8	26	14	11	13	8	58
Tuticorin.....	2	7	17	6	6	11	6	5	11		22	8	14	13	3	10
Viragapatam.....	1	2	11	2	2	3	2	4	4		25	5	3	4	4	10
India (French):	58	64	85	10	22	34	36	39	47	25	48	38	53	43	39	55
Chanderagor.....	11	11	16	3	3	4	6	8	37	12	29	39	47	12	7	10
Karikal.....	3	6	18	3	13	13	29	26	37	61	12	15	9	3	9	4
Pondicherry Province.....	2	1	9	2	8	2	6	10	7	11	12	15	9	3	9	4
India (Portuguese).....	1	1														
Indo-China (see also table below):																
Pnompenh.....	2															
Saigon and Cholon.....																
Iraq:																
Baghdad.....	9	20	16	3	1	3	1	2	1	1			2		1	
Basra.....	3	10	5					1	1	1			1			
Diyyah Liwa.....	63	40						2	1							
Kirkuk Liwa.....	18	7						1								
Mosoul.....	90	70														
	26	19														
	152	48	80	26					8	4						
	59	17	3	7					1	1						

15 cases of smallpox were reported Apr. 14 in Costa Rica outside of city of San Jose.

Place	Octo-ber, 1929	Novem-ber, 1929	December, 1929				January, 1930				February, 1930				March, 1930				Apr. 1-10, 1930
			Novem-ber, 1929		December, 1929		January, 1930		January, 1930		February, 1930		February, 1930		March, 1930				
			1-10	11-20	21-31	1-10	11-20	21-31	1-10	11-20	21-28	1-10	11-20	21-31	1-10	11-20	21-31		
Tunisia: Tunis.....	O	23	47	20	1	4	1	1				3				2	1		
Turkey (see table below).																			
Union of South Africa:																			
Natal Province.....	O	P	P	P	P	P	P	P	P	P	P	P							
Orange Free State.....	O	P	P	P	P	P	P	P	P	P	P	P							
Transvaal.....	O	P	P	P	P	P	P	P	P	P	P	P							
Upper Volta.....	O																		
Zanzibar.....	O																		
On vessel:																			
S. S. Tairas, at Liverpool, from London	O																		
S. S. Karagala, at Zanzibar, from India	O																		
S. S. Karos, at Zanzibar	O	1																	
S. S. Taipiku, at Manila, from Australia	O	1																	
S. S. Karagala, at Lorenzo Marques, from India	O																		
Belgian Congo.....	O	42	41	33															
Dahomey.....	O	4	2	4															
Indo-China (see also table above)	O	128	19	142															
Ivory Coast.....	O	P	17																
Sudan (French).....	O	28	10	9	6	18	6	4	4	7									
Syria: Beirut	O	1																	
Taiwan: Taihoku.....	O																		
Place	No-tem-ber, 1929	De-tem-ber, 1929	Jan-uary, 1930	Feb-ruary, 1930	March, 1930	Place	Jan-uary, 1930	Feb-ruary, 1930	March, 1930	April, 1930	May, 1930	June, 1930	July, 1930	August, 1930	September, 1930	October, 1930	November, 1930	December, 1930	
Bolivia: La Paz.....	C	22																	
British East Africa (see also table above):	C	278	168	12	12	6													
Kenya.....	C	2	4	1	4														
Chosen.....	C	2	4	12	6	5													
Mexico: Durango (see also table above).....	D	2	4	12	6	5													
Morocco.....	C	12	41	29	74														

During the month of March, 1930, 100 cases of smallpox were reported in Mexico City, Mexico, and surrounding territory.
 News reports of Feb. 4 show an epidemic of smallpox in Isonapec, Morelos State, Mexico; and vicinity giving 600 deaths in preceding 2 weeks.
 On Feb. 1, 1930, 317 cases of smallpox with 163 deaths were reported to that date in the Sarangani and Balit Islands.

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HEARING OF SCHOOL CHILDREN AS MEASURED BY THE AUDIOMETER AND AS RELATED TO SCHOOL WORK

A STUDY OF 710 CHILDREN IN WASHINGTON, D. C., AND 1,150 IN HAGERSTOWN, MD.

By E. BLANCHE STERLING, *Acting Assistant Surgeon*, and ELIZABETH BELL, *Occupational Therapy Aide, United States Public Health Service*

Introduction

In cooperation with the District of Columbia Board of Education, a study of hearing acuity was begun in August, 1927, in one of the summer schools of Washington. The investigation was continued during the regular session of the schools to the end of the year, and in January, 1928, was begun in the schools of Hagerstown, Md., through the cooperation of the school authorities of that city.

In the Washington summer school as many children were tested as possible, and in the regular school session the entire class was tested. In Hagerstown all the pupils were tested in the class selected. Generally speaking, a cross section of the school population was studied. In the summer school, however, children are supposed to be preparing for advanced work or to be making up credits for conditional promotion. The selections in these groups are on a basis of school work and are made by the school authorities. In one of the eighth-grade classes there was a predominance of overage children.

The audiometer used was a new one, and in the Washington schools it was set up in each school in a room with brick partitions. The pupils were seated in positions which made copying or comparison of tests impossible. Only eight ear phones were used at a test; and as the time was limited, there was practically no opportunity for a child to obtain results other than those of his own test.

Of the 710 pupils tested in Washington, 158 were given two tests, making in all 868 tests in that city. Most of the children retested were selected because their original test showed a marked hearing loss; in a few instances noises outside the testing room (fire drill, passing fire engines, etc.) interfered. In a limited number of extremely good scores, retests were made to find out whether the same score could be obtained.

The school grades of the children tested ranged from the third to the ninth, inclusive, and the ages from 8 to 17 years. In the third and fourth grades the 2-number test records 3 and 4 were used; from the fifth to the ninth, inclusive, 3-number test records 1 and 2 were used. These records appear to be interchangeable.

It is, of course, possible that the older children may have understood the nature of the test better than the younger ones and secured a better rating because of this superior understanding. However, since no child under 8 years of age was tested, this factor probably had little influence on the results.

I. Children with Various Grades of Hearing, by Age and Sex, in Washington and Hagerstown

All the tests of hearing in the Washington schools were made by Miss Elizabeth Bell, who carefully worked out the technique to be observed in handling the children and conducting the tests. At the beginning of the work in Hagerstown Miss Bell went to that city and demonstrated this technique to Miss Sallie Jeffries, who conducted the testing in the Hagerstown schools. It is seen, therefore, that though the tests were made by two different individuals the same methods were used in each case.

Though it is obviously inaccurate to say in general terms that one's hearing is as good as the hearing in the better ear, yet for purposes of study and comparison it would seem permissible to use the hearing in the better ear as the hearing status of the individual. Hence the general consideration of the hearing of the group will be based upon this interpretation.

In Table 1 are given the percentages of children with the various grades of hearing among the whole number examined. In Figures 1 and 2 are graphic representations of the facts brought out in the table.

There is apparently no doubt that among the older children there is more good hearing than among the younger. The rate for normal or above normal hearing among the children of 14 years and over is 27 per cent greater than the rate in the eight and nine year group.

TABLE 1.—Percentage of children with various grades of hearing in the better ear among 1,860 school children in Washington, D. C., and Hagerstown, Md., by age and sex

Grade of hearing	Age				
	All ages	8-9	10-11	12-13	14-17
Normal and above normal					
Both sexes.....	67.7	58.7	65.5	71.2	71.6
Boys.....	67.7	62.5	67.1	69.8	69.3
Girls.....	67.8	55.4	64.0	72.4	80.9
Loss of 3 units:					
Both sexes.....	22.0	31.6	25.9	16.8	15.4
Boys.....	21.4	28.6	21.8	16.4	18.3
Girls.....	22.7	34.2	26.9	17.2	11.5
Loss of 6 units					
Both sexes.....	8.7	8.6	7.3	10.4	7.7
Boys.....	9.0	7.7	6.1	11.8	9.7
Girls.....	8.3	9.3	8.4	9.1	5.8
Loss of 9 or more units					
Both sexes.....	1.6	1.1	1.3	1.6	2.4
Boys.....	2.0	1.2	1.9	2.0	2.7
Girls.....	1.2	1.0	0.7	1.3	2.0
Number of children.....	1,860	361	537	624	335
Boys.....	921	168	262	305	186
Girls.....	939	193	275	319	152

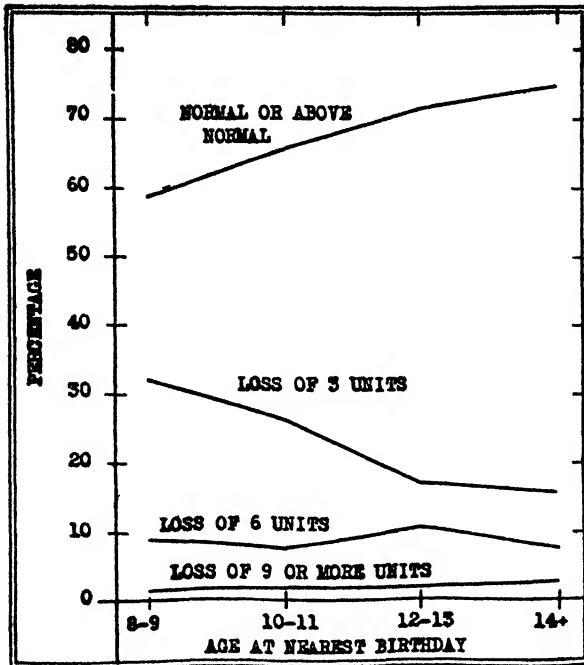


FIGURE 1.—Percentage of children with various grades of hearing in the better ear in the Washington (D. C.) and Hagerstown (Md.) schools, by age. (Both sexes)

Not only is it true that there is much more good hearing among the older children, but loss of hearing (three units) which is so slight as to have little significance is much less among the older children.

The reverse, however, is true in the case of the hearing loss which is great enough to be unquestionably significant—nine or more units.

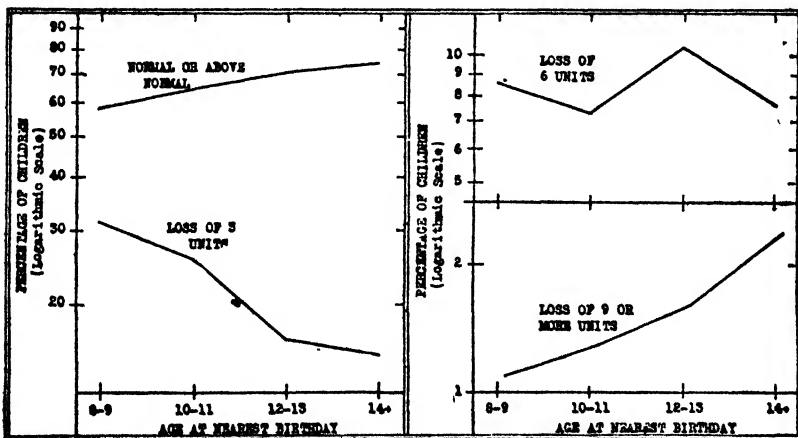


FIGURE 2.—Percentage of children with various grades of hearing in the better ear in the Washington (D. C.) and Hagerstown (Md.) schools, by age. (Both sexes. Logarithmic scale)

While the percentage of children having this degree of defect is low throughout the age period studied, there is a consistent rise in the curve from the youngest to the oldest group. Among the actually hard of hearing the older children are in the majority. In the loss of six units the curve of incidence in the various age groups shows no consistent rise or fall.

When the sexes are compared, it is seen that although there is a higher percentage with good hearing among the younger boys than among the younger girls, after a period between the ages of 11 and 12, the excess is in favor of the girls and is greater than that in favor of the boys in the younger groups.

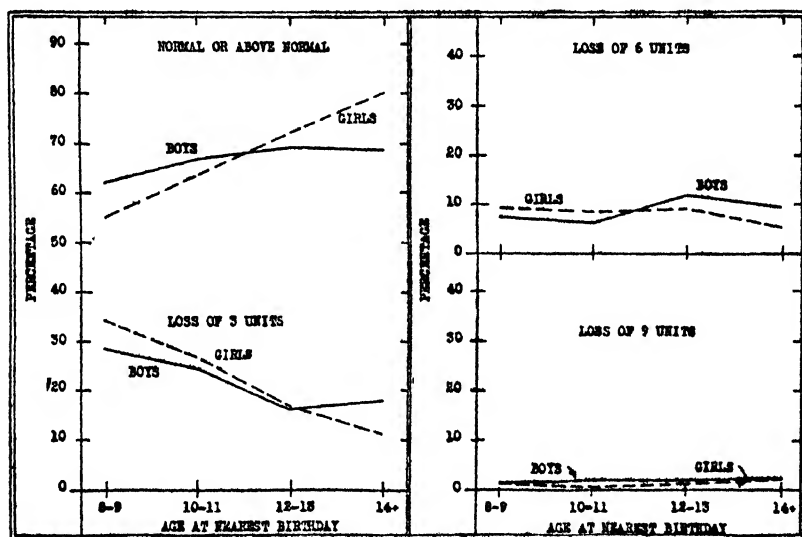


FIGURE 3.—Percentage of children with various grades of hearing in the better ear in the Washington (D. C.) and Hagerstown (Md.) schools, by age and sex

In the highest grade of hearing loss there is no age group in which the proportion among the boys is less than that among the girls. It may be said in general that there is slightly more marked impairment of hearing among the boys of all ages than among the girls. In the matter of good hearing the larger proportions are found among the younger boys and among the older girls.

COMPARISON OF THE HEARING OF CHILDREN IN THE WASHINGTON AND THE HAGERSTOWN REGULAR SESSION SCHOOLS AND IN THE WASHINGTON SUMMER SCHOOL

The findings recorded above are those relating to the group of children as a whole. The following more detailed study shows how these findings compare with those of each of the three separate groups studied, and how these groups compare with each other.

TABLE 2.—Percentage of children with various grades of hearing in the better ear in the Washington (D. C.) schools, the Hagerstown (Md.) schools, and the summer school, by age and sex

Grade of hearing and school group	All ages	Age			
		8-9	10-11	12-13	14-17
Normal or above normal hearing:					
Both sexes—					
Washington schools.....	70.6	52.3	70.0	73.2	79.3
Hagerstown schools.....	64.9	61.0	63.9	68.0	67.1
Summer school.....	82.5			82.6	85.2
Boys—					
Washington schools.....	66.0	50.1	67.5	68.2	68.2
Hagerstown schools.....	67.2	65.4	67.3	69.1	65.9
Summer school.....	80.3			80.0	82.7
Girls—					
Washington schools.....	75.1	53.6	73.4	77.7	90.5
Hagerstown schools.....	62.7	56.3	61.2	67.1	68.7
Summer school.....	85.7			87.5	88.0
Loss of 3 units:					
Both sexes—					
Washington schools.....	18.0	35.2	22.6	11.1	13.5
Hagerstown schools.....	25.3	30.6	27.0	21.5	20.3
Summer school.....	9.7			13.0	5.6
Boys—					
Washington schools.....	19.4	34.3	25.6	10.6	19.0
Hagerstown schools.....	23.7	27.2	24.1	20.9	22.3
Summer school.....	9.8			13.3	3.4
Girls—					
Washington schools.....	16.6	35.7	18.8	11.5	7.9
Hagerstown schools.....	26.8	34.1	20.4	21.9	17.2
Summer school.....	9.5			12.5	8.0
Loss of 6 units					
Both sexes—					
Washington schools.....	9.7	11.4	6.7	12.3	7.1
Hagerstown schools.....	8.3	7.3	7.5	9.8	8.8
Summer school.....	5.8			4.4	5.5
Boys—					
Washington schools.....	12.0	15.6	5.8	17.7	12.7
Hagerstown schools.....	7.0	5.9	6.3	8.6	7.4
Summer school.....	8.2			6.7	10.4
Girls—					
Washington schools.....	6.7	8.9	7.8	7.7	1.6
Hagerstown schools.....	9.6	8.8	8.5	11.0	10.9
Summer school.....	2.4				
Loss of 9 or more units					
Both sexes—					
Washington schools.....	1.6	1.1	0.7	3.3	
Hagerstown schools.....	1.5	1.1	1.6	0.6	3.8
Summer school.....	1.9				3.7
Boys—					
Washington schools.....	1.7		1.2	3.5	
Hagerstown schools.....	2.1	1.5	2.3	1.2	4.3
Summer school.....	1.6				3.4
Girls—					
Washington schools.....	1.6	1.8		3.1	
Hagerstown schools.....	0.9	0.7	0.9		3.1
Summer school.....	2.4				4.0

NUMBER OF CHILDREN TESTED

Washington schools:					
Both sexes.....	607	88	150	243	126
Boys.....	294	32	86	113	63
Girls.....	313	56	64	130	63
Hagerstown schools.					
Both sexes.....	1,150	272	385	335	158
Boys.....	566	136	174	162	94
Girls.....	584	136	211	173	64
Summer school:					
Both sexes.....	103	1	2	46	54
Boys.....	61		2	30	29
Girls.....	42	1		16	25

In Table 2 are shown the percentages of children with various grades of hearing in the three groups—the Washington and Hagerstown regular session schools and the Washington summer school. In any comparison of conditions in these groups it must be borne in mind that the number in the summer group is small—only 100 children. Since all but three of these children were 12 years of age or older, the two younger groups are omitted in the graphs. The Hagerstown group contains the largest number, 1,150; there were 607 in the larger Washington group. The curves in Figures 4 and 5 express graphically the comparisons among the schools.

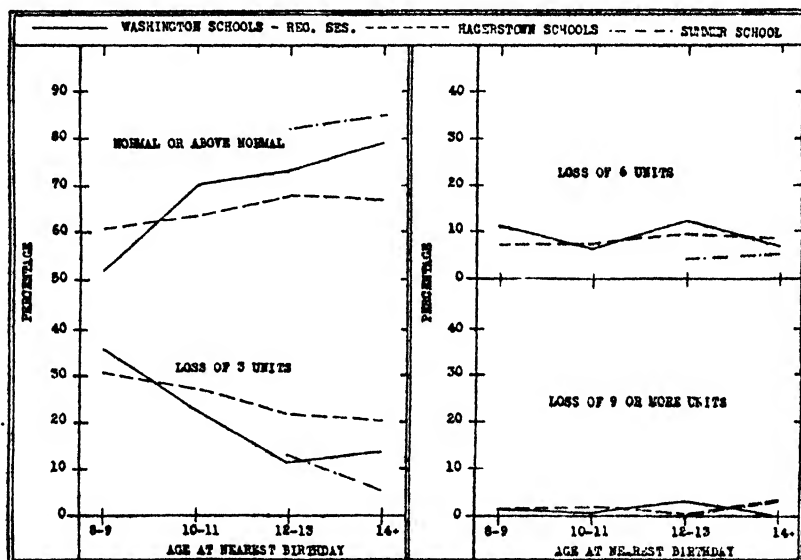


FIGURE 4.—Percentage of children with various grade of hearing in the better ear in the Washington (D. C.) and Hagerstown (Md.) schools and in the Washington (D. C.) summer schools, by age. (Both sexes)

The curves of the individual groups have, in general, much the same character as the curves of the combined group. The variations with age are generally similar, though the Hagerstown curves are smoother because of the larger number of children tested.

With the exception of the youngest children, there is a larger percentage with normal or above normal hearing in the Washington group than in the Hagerstown group. Among the older children, the summer school has the highest percentage of normal or above normal hearing.

In the matter of significant hearing loss, there is little difference among the three groups when all ages are considered. In no group at any age, when both sexes are taken together, does the percentage of those having significant hearing loss rise as high as 4. In the Washington regular session schools the peak is reached at the 12-13

age period, with a percentage of 3.3. In the Hagerstown schools and the Washington summer school it is in the oldest age period that the highest percentages are seen, 3.8 in the former and 3.7 in the latter.

Comparison of the sexes in each group.—The data in Table 2 (expressed graphically in fig. 5) shows that a higher proportion of the girls in the Washington schools in both the regular and the summer sessions have normal and above normal hearing than in the case of the boys. In the Hagerstown schools the boys have the advantage,

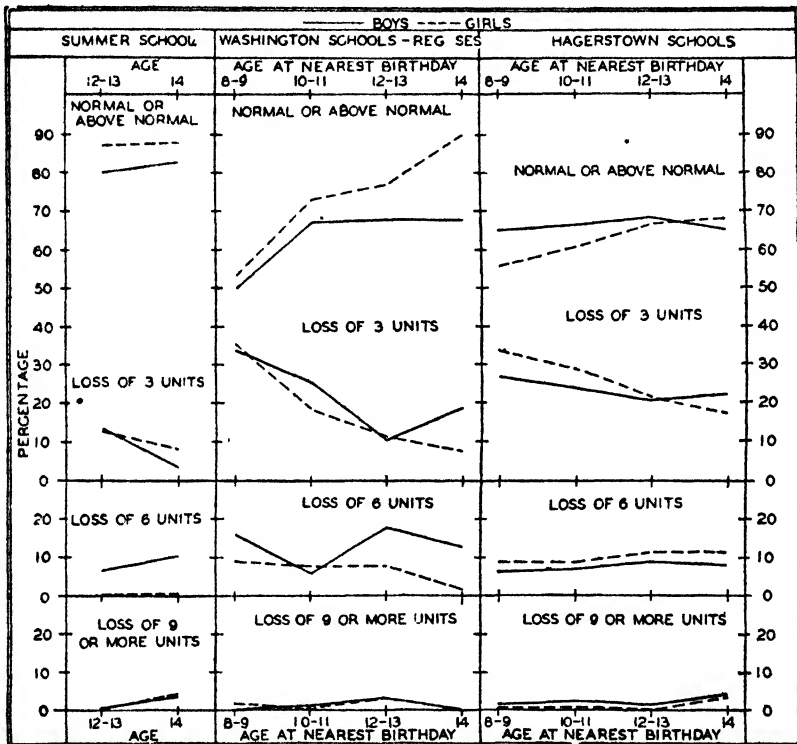


FIGURE 5.—Percentage of children with various grades of hearing in the better ear in the Washington (D. C.) and Hagerstown (Md.) regular session schools and in the Washington (D. C.) summer school, by age and sex

except in the oldest age group. In Hagerstown there are more girls with slight hearing loss, but with the most serious grade of hearing loss there are slightly more boys than girls.

In the Washington schools, both regular and summer sessions, in the matter of significantly poor hearing there is little difference between boys and girls. With both grades of slighter loss of hearing there are, in general, more boys affected than girls in the regular session schools.

In the summer school, more girls have a loss of three units, while more boys have a loss of six units. In any statement relating to the

summer school, however, the small number involved must be considered.

A comparison of the boys and girls in the three school groups is shown graphically in Figure 6. It is seen that, with the exception of the youngest children, in which group the Hagerstown children excel the Washington children, there is little difference in the amount of

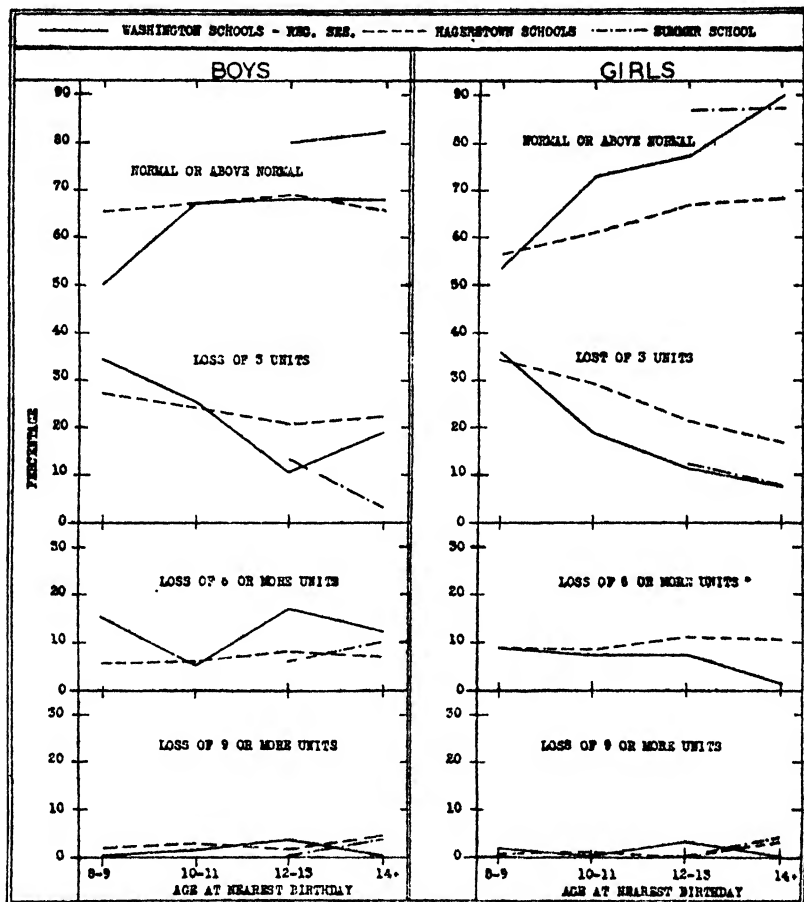


FIGURE 6.—Percentage of children with various grades of hearing in the better ear in the Washington (D. C.) and Hagerstown (Md.) regular session schools and in the Washington (D. C.) summer school, by age and sex

good hearing among the boys in the Washington schools (regular session) and in those in the Hagerstown schools. The boys in the summer school, however, have a decidedly higher percentage of good hearing than in either of the other two groups. In the matter of poor hearing (loss of nine or more units) the boys of neither group consistently exceed those of the other two groups.

A comparison of the girls in the three groups shows that a decidedly higher percentage of the Washington girls have normal or above normal hearing than the Hagerstown girls. The oldest girls in the regular session Washington schools excel even the girls of the same age in the summer school, though the summer school younger children are superior to those of Hagerstown or the Washington regular session schools. Among the girls with poor hearing (nine or more units) there is no consistent difference in the percentages in the three groups.

II. The Prevalence of Various Grades of Hearing in the Right and Left Ears

Since in every instance the ears were tested separately, it is a simple matter to determine in which ear the various grades of hearing were more prevalent in this group of 1,860 children. In comparing the right and left ears, only the best and poorest grades of hearing will be considered.

TABLE 3.—Percentage of children with good and poor hearing in the right and left ears among 1,860 school children in Washington, D. C., and Hagerstown, Md.—All ages

Grade of hearing	All schools		Washington schools		Hagerstown schools		Summer school	
	Right ear	Left ear	Right ear	Left ear	Right ear	Left ear	Right ear	Left ear
Normal or above								
Both sexes	50.0	54.6	51.7	56.0	46.9	52.0	74.7	75.8
Boys	51.4	54.3	48.0	49.6	51.1	54.6	70.5	73.8
Girls	48.7	55.0	55.3	62.0	42.8	49.5	81.0	78.5
Loss of 9 or more units								
Both sexes	7.0	5.5	7.1	6.3	7.2	5.2	4.9	3.9
Boys	7.6	6.5	7.5	8.2	8.0	6.0	4.9	3.3
Girls	6.5	4.5	6.7	4.5	6.5	4.5	4.8	4.8

In Table 3 are given the percentages of children of all ages with good and poor hearing in the right and left ears in all the schools and in the individual school groups. It is seen that in every instance except in the case of girls in the summer school a higher percentage of left ears have good hearing than of right ears. This is true of the group as a whole and of each separate school group. The difference is most marked in the case of girls in the Washington and Hagerstown schools. In the matter of the highest grade poor hearing, however, a slightly higher proportion of the right ears are found to have this defect. The reverse is true in the case of boys in the Washington schools, and the percentage among girls in the summer school is equal in the two ears.

It seems evident, when all ages are considered, that the left ear is superior to the right among these children. In order to learn whether this is true of boys and girls of the various ages, a further analysis of the data is necessary.

TABLE 4.—*Comparison of right and left ears by age and sex. Percentage of children with good and poor hearing among 1,860 school children in Washington, D. C., and Hagerstown, Md.*

	Good hearing (normal or above normal)				Poor hearing (loss of 9 or more units)			
	Age at nearest birthday							
	8-9	10-11	12-13	14-17	8-9	10-11	12-13	14-17
Both sexes:								
Right ear.....	38.8	47.1	55.5	56.5	7.2	6.5	7.5	6.8
Left ear.....	45.5	50.1	58.0	65.4	3.9	3.9	8.2	4.7
Boys:								
Right ear.....	43.5	49.7	56.4	52.7	6.0	6.9	8.5	8.6
Left ear.....	49.4	53.5	54.8	50.2	4.2	5.3	8.5	7.0
Girls:								
Right ear.....	34.7	44.7	54.5	61.2	8.3	6.2	6.6	4.6
Left ear.....	42.0	46.9	61.1	73.0	3.6	2.5	7.8	2.0

In Table 4 and Figure 7 the data are arranged to show a comparison of the right and left ears by age and sex.

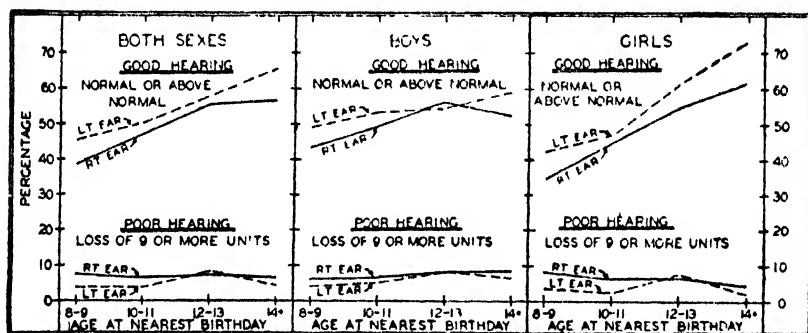


FIGURE 7.—*Comparison of right and left ears by age and sex. Percentage of children with good and poor hearing among 1,860 school children in Washington, D. C., and Hagerstown, Md.*

It is easy to see from the table and graphs that in the matter of good hearing the superiority of the left ear is maintained at all ages, with one exception. The curve of good hearing in the left ear falls a little below that in the right ear among boys in the 12-13-year age group.

The predominance of poor hearing in the right ear is general in this group at all ages except 12-13. A rather larger number of girls at that age have poor hearing in the left ear, while in boys of the same age there is no difference in the amount of poor hearing in the two ears.

It is not possible to say whether this indicated superiority of the left ear is real or only apparent. There would seem to be no reason why such difference should exist or why one ear should be better than the other. The result in this particular group may have been purely a matter of chance.

COMPARISON OF THE RIGHT AND LEFT EARS OF BOYS WITH THE CORRESPONDING EAR OF GIRLS

Since we have seen that, generally speaking, in this group there is a greater amount of good hearing in the left ear, and more poor hearing in the right, it is of interest to note how the hearing in each ear in one sex compares with that in the other.

Considering the right ear of boys and girls, we see in Table 4 that good hearing in that ear is found more frequently among the boys except in the oldest age group. In the matter of poor hearing in the right ear, the greater amount is found among the boys except in the youngest age group. Apparently the degree of hearing most prevalent in the right ears of the girls lies between these extremes.

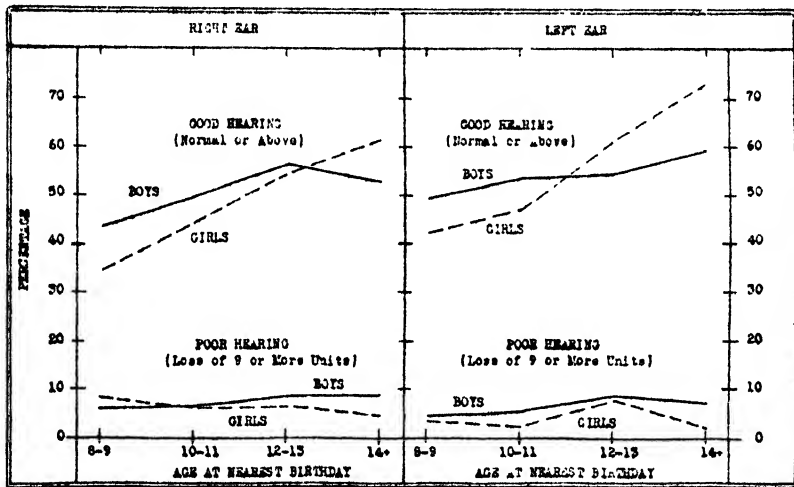


FIGURE 8.—Comparison of the right and left ears of boys with the corresponding ears of girls. Percentage of children with good and poor hearing in each ear among 1,800 children in Washington, D. C., and Hagerstown, Md., by age and sex

When the left ear is considered, good hearing is more equally divided between the sexes. Among the younger children the boys have the advantage, but the reverse is true in the older age groups. In the matter of poor hearing in the left ear, a greater amount is found among the boys at every age.

III. The Relation of Hearing to Age-Grade Status, Character of Work, and Intelligence Quotient

A study of the age-grade status of the total number of children (1,860), of the character of work of 1,313 children, and of the intelligence quotient of 585 children reveals an interesting correlation between the hearing status of the children and these three factors related to their mental status.

TABLE 5.—*Relation of hearing status to age-grade status of 1,860 children in the Washington, (D. C.) and Hagerstown, (Md.) schools*

Hearing	Percentage of children			Number of children		
	Under age for grade	At age for grade	Over age for grade	Under age for grade	At age for grade	Over age for grade
All children.....	100.0	100.0	100.0	129	1,285	446
Normal or above.....	72.9	68.4	64.4	94	879	287
Slight loss.....	27.1	30.4	32.7	35	390	146
Loss of 9 or more units.....		1.2	2.0		16	13

The age-grade status was known of every child in the whole group studied. Table 5 shows the relation of this factor to the hearing status of the children.

It is seen that the percentage of children with significant hearing loss is greater in the overage-for-grade group. Among the children who were under age-for-grade, there was no significant loss of hearing. This is equally true when the age groups are considered separately. Among the overage children the percentage was more than twice as great as that among the age-for-grade children when all ages are considered. When the different age groups are considered, a comparison of age for grade and overage for grade can be made only of those children 10 years of age and older, because there were no children overage for grade in the 8-9 year group. In the 10-11 year group there was little difference in the amount of significant hearing loss, but in the 12-13 year group the percentage among the overage children was twice that among the age-for-grade group. In the oldest group there was no significant loss among the age-for-grade children, but among the overage-for-grade children the percentage was 3.8.

TABLE 6.—*The relation of the hearing status of 1,313 children in the Washington, (D. C.) and Hagerstown (Md.) schools to the character of their school work*

Hearing	Percentage of children			Number of children		
	Excellent work	Satisfactory work	Unsatisfactory work	Excellent work	Satisfactory work	Unsatisfactory work
All children.....	100.0	100.0	100.0	255	746	312
Normal or above.....	61.6	66.8	59.6	157	498	186
Slight loss.....	36.8	31.5	38.2	94	235	119
Loss of 9 or more units.....	1.6	1.7	2.2	4	13	7

Table 6 seems to indicate that significant loss of hearing increases as the character of the work grows poorer. In other words, when all ages are considered, among the children doing the poorest school work there is the largest amount of significant hearing loss. When the age groups are considered separately this is strikingly true of the youngest and oldest groups. In the two intermediate groups, 10-11 and 12-13, there is much irregularity.

The intelligence quotient was known only in the case of 585 children in the Washington schools. The hearing status of these children is shown in Table 7.

TABLE 7.—*The relation of the hearing status of 585 children in the Washington D. C., schools to their intelligence quotient*

Hearing	Percentage of children			Number of children		
	Intelligence quotient above average	Intelligence quotient average	Intelligence quotient below average	Intelligence quotient above average	Intelligence quotient average	Intelligence quotient below average
All children.....	100 0	100 0	100 0	167	311	107
Normal or above.....	74 2	71.7	60 8	124	223	65
Slight loss.....	25 2	26 7	35 5	42	83	38
Loss of 9 or more units.....	0.6	1.6	3.7	1	5	4

Here again it is seen that the greatest amount of defective hearing is found among the children with the lowest mental status.

In all these comparisons it must be borne in mind that the number of children with significant hearing loss is small, and conclusions drawn from such data are never really conclusive. However, the three sets of comparisons are in such agreement that one feels justified in assuming that children with such defective hearing are at least handicapped in their school work. No one would, of course, assume that defective hearing affects "native" intelligence, but a failure to hear clearly the oral presentation of a mental test might easily affect the intelligence quotient.

IV. The Relation of Hearing to a Discharging Ear

The records of discharging ears were obtained from the children themselves, and hence the accuracy of the reports can not be of the highest order. The error probably lies chiefly in the fact that a child might easily forget having had a running ear if it were not of recent occurrence. However, the possible seriousness of a discharging ear is great enough to make a study of this relationship desirable.

TABLE 8.—*The relation of the hearing status in the right and left ears to a discharge from the ears in 1,815 school children in Washington, D. C., and Hagerstown, Md.*

Hearing	Percentage of children with a history of a discharging ear				Number of children with a history of a discharging ear				Total number children examined
	Right ear only or both ears	Left ear only or both ears	Both ears	One or both ears ¹	Right ear only or both ears	Left ear only or both ears	Both ears	One or both ears ¹	
Right ear:									
Normal or above.....	4 07	4.29	1 98	8.02	37	39	18	73	910
Slight loss.....	5 80	4.38	1.55	9 92	45	34	12	77	776
Loss of 9 or more units.....	14.73	11.63	5.43	21.70	19	15	7	28	120
Left ear:									
Normal or above.....	4.42	3.22	1.51	7.54	44	32	15	75	995
Slight loss.....	6.36	5.81	2.21	11.48	46	42	16	83	723
Loss of 9 or more units.....	11.34	14.43	6.19	20.62	11	14	6	20	97

¹ Includes children with discharging ear, but with no statement as to which ear discharged.

In Table 8 the correlation of the various grades of hearing with a discharge from the ear is shown for both the right and left ears.

It is seen at a glance that the percentage of children with a discharge from one or both ears varies inversely with the grade of hearing. This is true of both the right and left ears. In the right ear the percentage rises from 8 per cent in a group with normal or above normal hearing in the right ear to 21.7 per cent in a group with a significant hearing loss (nine units or more) in that ear. A like trend is observed in the left ear, in which a percentage of 7.5 per cent in the group with excellent hearing in the left ear rises to 20.6 per cent in the group with the poorest hearing in that ear.

Summary

1. In the whole group studied, there appeared to be more normal or above normal hearing among the older children. It is impossible to say whether this is a real difference or whether the older children made better records because of a better understanding of the tests.

2. Among the actually hard of hearing (loss of nine or more units) the older children were in the majority.

3. In general there was slightly more significant impairment of hearing among the boys of all ages than among the girls.

4. In no group at any age, when both sexes were taken together, did the rate of children with significant hearing loss rise as high as 4 per cent.

5. In general, there was a higher proportion of left ears with good hearing than of right ears. This was true of the group as a whole and of each separate school group. With one exception (boys in the 12-13 year group) the superiority of the left ear was maintained at all ages. Likewise, the predominance of poor hearing in the right ear was general at all ages except 12-13. No explanation of this difference is offered, but the element of chance may have been a factor.

6. The percentage of children with significant hearing loss was generally greater in the overage-for-grade group.

7. Among the children doing the poorest school work in the youngest and oldest groups there was the largest amount of significant hearing loss. In the intermediate-age groups the findings were not clear cut.

8. The highest percentage of children with significant hearing loss was found in the group with the lowest intelligence quotient.

9. The percentage of children with a discharge from one or both ears varied inversely with the grade of hearing.

THE TYPE DISTRIBUTION OF MENINGOCOCCI IN THE UNITED STATES DURING 1928 AND 1929

By SARA E. BRANHAM, *Bacteriologist*, CLARA E. TAFT, *Junior Bacteriologist*, and SADIE A. CARLIN, *Laboratory Assistant, the Hygienic Laboratory, United States Public Health Service*

During 1928 and 1929 epidemic cerebrospinal meningitis was more prevalent in the United States than at any other time since the World War, and a number of serious outbreaks occurred in widely scattered sections. The fatality rate was very high—as much as 50 per cent in some places—and serum therapy was not as efficacious in many localities as earlier experience with it had promised. A study of meningococci isolated from meningitis patients during this time has seemed an important step in approaching an understanding of this disappointing situation. We began our studies by trying to determine whether or not there are differences between the meningococci involved in these current cases and those which were prevalent during the epidemics of 10 years ago.

With the cooperation of many persons, nearly 200 strains of meningococci have been collected. One hundred and fifty-five of these were isolated during the 18 months following June, 1928. One hundred and forty are from spinal fluid, 5 from blood, and 10 from the nasopharynx. These meningococci are being studied from many angles, but in this report only their antigenic relationships, based on the agglutination and the absorption of agglutinin tests will be discussed, because it is upon this basis that serum therapy in cerebrospinal meningitis depends at the present time.

Although meningococci are a homogeneous group morphologically and culturally, they show much variation antigenically. A number of classifications have been reported. Murray (1) presents a table in which he has worked out the interrelations to each other of six classifications, based on the agglutination test. To these we must add the German classification (2) into 7 types whose relation to these other groupings is entirely unknown. These do not take into account the classification into 5 tropin groups made by Evans (3) in 1920. To-day the Gordon-Murray classification (4) is finding wide use in England and America, while the A, B, C, D (5) classification is recognized in France. The English I and III correspond with the French A, and II and IV with the French B; but the French C and D do not correspond with any English type.

Gordon has reported his four groups to be as distinct from each other as the paratyphoid species A and B (6). At the other extreme it appears that Walker (7) believes there is no justification for splitting the meningococcus into subgroups, claims that immunization by any type of meningococcus results in a polyvalent serum, and con-

siders that such a subdivision into groups could be made with different strains of any bacteria. Between these two extremes there are many opinions.

Both on account of the interest felt in the type distribution and as a basis for further studies with them, our 155 new strains of meningococci have been typed, using Gordon's classification. Monovalent type sera were made by immunizing young rabbits with representative strains which have been used at the Hygienic Laboratory as standard type strains for several years.

At first simple agglutination tests were made, running all strains with each of the four type sera in dilutions as high as 1:1600, as well as with normal horse serum. Absorption of agglutinin tests were done wherever they seemed to be indicated. Although no rigid criterion was adopted, usually absorption tests were made with all sera which agglutinated a strain in a dilution representing more than one-fourth of its titer.

The Type IV strains were easily separated from the others in these simple agglutination tests. There was practically no cross agglutination with other types, and no evidence of the close relation to Type II referred to by many others. In this respect the Type IV strains that we have found in this country differ from a Type IV strain that has recently come from Doctor Gordon, through the kindness of Doctor Krumwiede, as being typical of those found in England.

Next to Type IV, the Type II strains were most easily recognized. There was often some agglutination of these by low dilutions of Type I and III sera; but in only one case was absorption of agglutinins necessary, although such a procedure was followed with other strains as a matter of interest. Whenever a strain was agglutinated equally well by I, II, and III, or by I and II, or by II and III sera, absorption showed it to be either a I or III, and never a II.

With Type I and Type III strains cross agglutination was the rule, and there were very few exceptions. Generally, absorption of agglutinins was necessary to separate these from each other. Some Type I strains were recognized in the simple agglutination tests, but no Type III strain was identified as such without absorption of agglutinins. Not only was absorption necessary in order to separate the Type III strains, but with 12 strains separation by absorption with our standard type sera was not possible, each removing all agglutinins from both the I and III sera. The standard type sera used were made from strains which, while specific, are broadly agglutino-genic for their types—that is, a serum produced with each will agglutinate the majority of strains belonging to that type. Apparently the relation between I and III is so close that broad strains of these types are indistinguishable by absorption tests with their homologous sera. It was necessary to seek for strains of narrower

specificity in order to separate them. When this was done, nearly all of these puzzling strains were shown to be of Type III. Although the Type II and the Type IV strains were identified with ease, as were also some of the I's, months of work were necessary to separate all of the I's and III's from each other satisfactorily. Even then their separation depended on the choice of narrow strains within the groups as standards, and a change to yet other strains might alter their classification. Experience with these strains casts doubt upon the validity of the separation of I and III into two groups. It seems rather that III is a subgroup of I, and it is considered as such by several classifications. Evans (3) found Types I and III to belong to the same tropin group. The time and labor involved in separating organisms as closely related as these I and III meningococci, while of much interest from a theoretical point of view, seems of questionable practical value.

Many strains seemed at first to be inagglutinable. These had to be considered individually. Some became readily agglutinable after several months of cultivation; with others an adjustment of the pH of the suspensions nearer to the isoelectric point solved the agglutination problem; sometimes it was necessary to plate them out in order to find agglutinable colonies. Sometimes all of these methods failed and it was necessary to resort to indirect typing by immunizing rabbits with these strains and studying the agglutination activities of the sera obtained thus. In these ways we have succeeded in typing nearly all of our meningococci.

The accompanying table shows the distribution of our 155 strains according to type, expressed in percentage. The first column shows the type distribution in the epidemic years of 1918-19 as determined by Butterfield and Neill (8). Columns 2 and 3 show the distribution of types in 2 nonepidemic years as determined by Evans (9). Column 4 shows the distribution among the types during the epidemic years of 1928-29 as determined by ourselves. These typings are interesting to compare, because they were done with practically the same technique, and the same four-standard type strains of meningococci were used to prepare the type sera.

Grouping of meningococci in the United States according to Gordon's types

Type	1918-19 (123 strains)	1921 (16 strains)	1922 (15 strains)	1928-29 (155 strains)
	<i>Per cent</i>	<i>Per cent</i>	<i>Per cent</i>	<i>Per cent</i>
I.....	37.5	18.7	6.7	52.9
II.....	25.8	18.7	-----	7.0
III.....	21.1	12.6	-----	18.7
IV.....	2.3	6.3	13.3	12.2
Not in the above types.....	13.3	43.7	80.0	9.2

Seventy-one per cent of our strains fall into Groups I and III, which correspond to the French Type A. This is definitely a higher percentage than in the epidemics of 10 years ago. It is of interest to note that there is such a low incidence at present of Type II, which has usually been next to I in frequency of occurrence. The increase in Type IV and the decrease in the number of strains which can not be placed in any type are worthy of note. The majority of sporadic strains found during the interepidemic years of 1921 and 1922 were atypical and did not fall into any of the recognized types.

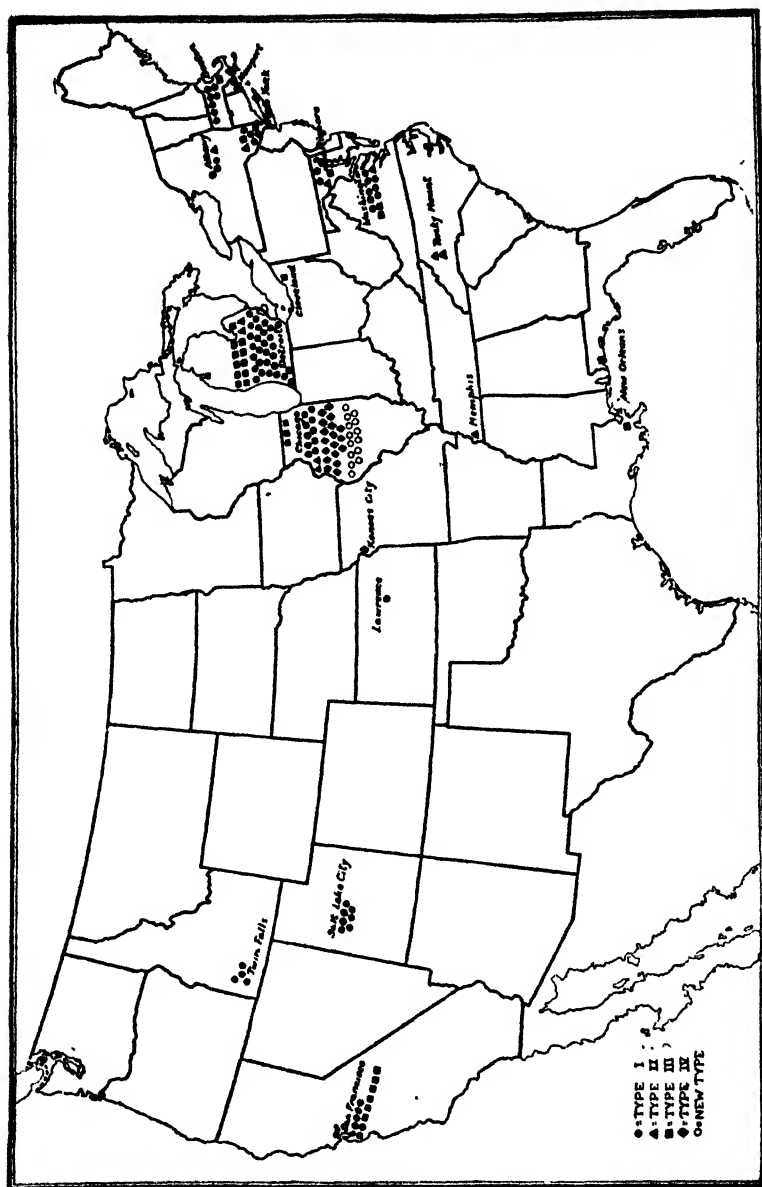
The geographical distribution of our 155 strains according to Gordon's types is shown on the accompanying map. This map is obviously incomplete, for there have been many outbreaks from which we have obtained no cultures; but it represents the distribution of those strains which we were fortunate enough to receive. The localization of Type IV in the Middle West is striking, only one strain of this type being received from outside of Chicago, and that one from Kansas City. In Chicago it seems to have been the dominant type. Another interesting point is that in small, severe, definitely localized outbreaks all strains are alike in type, as, for example, Type I in Salt Lake City and in Twin Falls, Idaho, and Type II in Rocky Mount, N. C.

Type I has been predominant throughout all of these studies. During the last 10 years Type II has changed from second place to fourth. Type III has taken second place. Type IV has definitely increased.

All of these 155 strains have been tested for agglutinability with therapeutic polyvalent sera from 8 different manufacturers. About 50 per cent were well agglutinated from the first by all of these. Many others were poorly agglutinated at first, but became more agglutinable after a few weeks or months of laboratory maintenance. The only strains that have never been agglutinated by any of these polyvalent sera are among the 9.2 per cent that we have not been able to type. Apparently they are not represented in Gordon's classification, nor in the polyvalent therapeutic sera, if the agglutination test be taken as a criterion, although they form a homogeneous group among themselves. A more detailed study of these strains is being reported in another paper (10).

SUMMARY

One hundred and fifty-five strains of meningococci, isolated during the last 18 months, have been typed according to the classification of Gordon. Of these, 90.8 per cent fall into Gordon's 4 groups, whereas 9.2 per cent do not seem to be represented in that classification. Comparison with the grouping during the epidemic years 1918-19 shows a present greater preponderance of Types I and III (which are



considered by many to belong to the same group), a definite decrease in Type II, a marked increase in Type IV, and a decrease in the number of strains that could not be typed. A striking contrast is seen in intervening nonepidemic years in which there was a great predominance of atypical strains.

These studies indicate that at least 90 per cent of the meningococci studied during this last year are quite typical agglutinogenically, and that they are on the whole fairly well represented in the polyvalent sera prepared for therapeutic use.

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CARE OF SICK AND DISABLED AMERICAN SEAMEN IN FOREIGN PORTS AND ON CARGO VESSELS

Sick and disabled seamen from American merchant vessels are given hospital care and medical treatment in ports of the United States, the insular possessions, and Alaska by the United States Public Health Service, in accordance with the act of July 16, 1798. There are 25 marine hospitals, and relief stations are operated in 150 ports. The total number of seamen treated during the fiscal year ended June 30, 1929, was 135,276; out-patient treatments numbered 367,294; and the total number of hospital days amounted to 981,295.

A report¹ has recently been issued by Dr. Walter Clarke, director of medical measures, American Social Hygiene Association, on the care of sick and disabled American seamen in foreign ports and on cargo vessels. This report is based on observations made in Copenhagen, Genoa, Havre, Antwerp, Hamburg, and London during the period September 21 to November 9, 1929. The object of the investigation was "to learn what provisions are made in foreign ports for the care of American seamen suffering from diseases or disabilities

¹ Report of Observations on the Care of American Seamen in Foreign Ports and on Cargo Vessels, September 21 to November 9, 1929. Prepared by Dr. Walter Clarke, American Social Hygiene Association. (Mimeographed.)

requiring medical attention." Observations were also made on the care on shipboard of sick or disabled American seamen on cargo vessels.

With regard to the responsibility and practice in the care of sick or disabled American seamen in foreign ports the report states:

The growth of the American merchant marine and the placing of this industry upon a permanent basis make all questions bearing upon the health of seamen a matter of major national importance. It is hoped that these notes regarding the ports and vessels may give an indication as to the importance of further inquiry and the development of suitable programs.

The laws of the United States require that the steamship companies be held responsible for sickness and injuries received by seamen in so far as such sickness and injury have been received "in the service of the ship." Formerly, destitute seamen and deserters who required medical care were looked after by the American consulates abroad, but a recent ruling of the Comptroller General states that the steamship companies must be responsible for hospitalization and care incident to the repatriation of seamen regardless of the nature of their disability. This includes, for example, the venereal diseases, injuries received in brawls, alcoholic gastritis, etc., conditions which are not caused by anything connected with the service of the ship. This new ruling and general tightening up of the supervision of expenditures by American consuls for the relief of American seamen has resulted in considerable confusion in foreign ports. Formerly a deserting seaman who acquired syphilis or gonorrhea applied to the nearest consul for relief and repatriation, and the consul arranged for his relief transportation to the United States. Now the consul makes a strong effort to induce the steamship company, by which the seaman was formerly employed, to pay the expense of hospitalization and repatriation. The definition of a deserter has been more strictly interpreted so as to rule out stragglers, i. e., sailors who have been left behind because of drunkenness or who have for any other reason failed to rejoin their ships after shore leave.

The practice with regard to the discharge of seamen due to illness varies in different ports and leads to confusion and difficulties so that neither the seamen nor the agents nor the consuls are altogether satisfied. At the present time the steamship companies, not unnaturally, try to unload the sick and disabled American seamen, if suffering from causes not associated with the service of their ship, or if a deserter, or straggler, on to the United States consuls. The consuls, on their side, try to force the steamship companies to pay for such seamen, and the seamen endeavor to escape costs of hospital care, being willing that either the steamship companies or the consuls should undertake that responsibility. All concerned would welcome clarification of regulations and uniformity of procedure.

With regard to port surgeons, port hospitals, and first-aid treatment on cargo ships, the report states:

In each port visited (Copenhagen, Naples, Antwerp, Hamburg, Havre, London) a doctor has been employed by American shipping interests to look after American seamen. He is usually a general practitioner of good standing. There are two types of contracts between these port surgeons and the companies. One type of contract provides that the port surgeon shall visit every American ship entering the port and care for seamen who require medical attention, the remuneration being so much per ship. The other type provides that the doctor may be called to the ship or that the doctor may give attention at his own consulting room, and a schedule of fees for visits to the ship or to the consulting room, by day or by

night, is agreed upon. Some of the port surgeons undertake the treatment of venereal diseases on shipboard, some treat these conditions at their own offices, and others refer them to the public clinic. In some cases the port surgeons doubtless encourage the seamen to become their private patients, although better treatment could be had free of cost at the public clinic. There is some reason to believe that port surgeons would serve the interests of the seamen more perfectly if, where possible, they referred all cases of syphilis and gonorrhea to the public clinics.

In some instances the port surgeons have been placed in an awkward position through the ignorance of agents and shipmasters. An instance of this may be cited: A certain port surgeon was called upon to visit a ship and examine a seaman suffering from severe pain in the abdomen and was asked to say whether the seaman should be allowed to depart with the ship. The port surgeon said the man should be sent to the hospital for observation. Two days later the surgeon of the hospital informed the port surgeon that he believed the seaman to be suffering from appendicitis and proposed to operate upon him the next day. The port surgeon concurred in this opinion, but the seaman refused operation, left the hospital, and applied to the master of the ship to take him back on board. The master of the ship, it is stated, agreed to do this if the seaman would bring him a statement from another doctor to the effect that the seaman was able to perform his duties. The seaman succeeded in obtaining such a certificate and the master permitted the seaman to rejoin the ship.

In this case the master would appear to have taken a very great risk in signing on the seaman in spite of the opinion of two doctors (one of which was the port surgeon employed by the steamship company) to the effect that the man should not sail and should be operated on for appendicitis. The doctor whom the seaman last consulted did not confer with the port surgeon and it is not known whether the seaman informed him fully of the facts of the case; probably he did not. Evidently local agents and masters would be well advised to accept the opinion of their port surgeons, who are employed for the purpose of giving such advice and who accept responsibility for it.

Wherever it is possible, hospitalization in foreign ports should be arranged by the port surgeon, who is competent to judge whether hospitalization is necessary and who knows the port's hospitals. An instance of this occurred recently in a certain port. An ambulance was called to meet the ship and to take a seaman to the hospital, but the ambulance attendants refused to move the sailor from the ship until they had a guarantee that the costs of hospitalization would be met. After much trouble, hard feelings, and delay, the cost of hospitalization was guaranteed temporarily by the pilot who happened to be on board ready to take the ship out of port.

The facilities on board a cargo ship for the treatment of emergency cases are often in the hands of the chief steward, although the first officer is usually held responsible by the captain. Deck and engine-room officers must have a first-aid certificate and they are supposed to be able to render simple first aid.² It would, therefore, seem a mistake to have the facilities and the actual care in the hands of the first steward, who usually knows very little about first aid. American ships usually carry a captain's medical guide and the new guide³ recently issued by the United States Public Health Service is excellent in most particulars. Some ships, however, do not have this guide, but old fashioned books which are

² Editorial note: In accordance with the requirements of the Steamboat Inspection Service, applicants for license as master, mate, pilot, and engineer must, before receiving papers, be instructed in first-aid procedures and receive a certificate of proficiency from an officer of the United States Public Health Service.

³ The Ship's Medicine Chest and First Aid at Sea.—Ed.

almost useless. It seems, also, that officers consult the medical guide only when they are in trouble and they sometimes find that they do not know how to carry out the procedures suggested by it. Sometimes the facilities for first aid treatment or simple medical care are not available, sometimes they are of the wrong type. Thus, on the ships studied, an archaic type of urethral syringe was provided, and on one ship the contents of the medicine chest were scattered between the salon and the quarters of various officers. Some of the medicaments were old and useless and others, though listed, were not on hand. There was nothing with which the modern and scientific treatment of burns and scalds could be carried out, no picric or tannic acid.

It may reasonably be doubted whether stewards, though ever so good at their special duties, should be charged with responsibility for the medicine chest or with the administration of first aid to seamen. One such officer remarked: "On a cargo ship the chief steward must be a cook, baker, meat cutter, salesman for the slop chest, bookkeeper, and a good fighter, since the fo'castle is often hard to please. To ask him to serve also as the ship's 'doctor' in spite of the fact that he does not have a first-aid certificate and does not enjoy much authority would seem too much."

It has been suggested by ship officers themselves that the first-aid training should be somewhat elaborated in the case of the master of the ship and that before an officer with a captain's license is assigned as master he should renew his acquaintance with first aid and should have some additional instruction in regard to emergencies which may occur on a ship without a doctor. An example of this may be cited. A seaman suffered from an acute retention of urine. It was many hours before medical advice could be attained by wireless. When that advice came, it suggested, of course, an effort to pass a rubber catheter. No one on the ship knew how to pass a catheter and the seaman was moribund before he could be taken off to another ship which had a surgeon. It may be suggested that every ship should be provided with a well equipped and thoroughly modern medicine chest, which should be properly organized in one place and inspected and checked up on each trip. It should be in charge of the first officer who should be the dispenser.

Of the two types of contract, that which requires the port surgeon to visit every ship is doubtless preferable. The port surgeon comes to the ship on its arrival and is available for consultation by any member of the crew who wishes to see him. Minor conditions and conditions about which a seaman hesitates to approach the captain may in this way be brought to the attention of the doctor, and the interests of the seamen and of the ship are protected. In the other type of contract the seaman must apply to the captain for medical attention; and as the port surgeon is paid at so much per visit to a ship, the captain would naturally use his judgment in deciding whether to call the port surgeon. Where the surgeon is under contract to visit the ship on each call to the port such conditions do not arise.

It was surprising to learn that in some ports the port surgeon had never visited the hospital to which he sends seamen as patients. In several of the ports visited I found that the practice of the port surgeon was to send a seaman to the appropriate hospital and to have nothing further to do with him. The first visits of these surgeons to the hospitals in question were made in my company, and I was interested to observe that in these instances the establishment of contact between the port surgeons and the port hospitals utilized by American seamen resulted in a better understanding between the port surgeon and the hospitals. This was especially evident in one case where the port surgeon had had difficulty in getting reports for the Protective and Indemnity Bureau regarding the seamen treated by the hospital. There would be considerable advantage to the seamen,

to the steamship companies, and the Protective and Indemnity Bureau in framing the contracts with port surgeons so as to include some attention by the port surgeon to the seamen after the latter have been placed in hospitals.

I visited the hospitals in each port with the exception of Copenhagen, where time did not permit; and, as I was already acquainted with a good many Scandinavian hospitals, this was perhaps not a serious omission. In Copenhagen, Antwerp, and Havre, seamen are usually sent to the general hospitals of the municipalities. In Hamburg, London, and Genoa, American seamen are usually sent to hospitals which are intended especially for seamen. Sometimes, these hospitals being overcrowded, seamen are sent to other general hospitals.

The hospital at Genoa is an ancient institution called the Protestant Hospital. It is a simple but clean institution and has the great advantage for American seamen that many of the nurses speak English. In Hamburg, American seamen are often sent to the Ship and Tropical Disease Hospital, where they receive excellent care, but where they are often unable to communicate with anyone on account of the language. In London, American seamen are well cared for and are comparatively happy in the Dreadnaught Hospital at Greenwich.

American seamen in European hospitals, however, are often not contented, because of misunderstandings which arise out of language difficulties, because of the diet which is provided for patients, and sometimes because of the difference in sanitary standards. The hospitals visited are, however, good according to the standards of the country in which they are located; and if the seaman becomes "fed up" with boiled cabbage and tea, or disgusted with nurses who can not understand what he wishes to say, it is hardly the fault of the hospital administration.

A seaman in one hospital was undergoing dietary treatment for gastric ulcer. He was given nothing but milk for a week and came to the conclusion that he was being starved (although this is an accepted form of treatment). He walked out of the hospital and collapsed upon the sidewalk, and it was only with difficulty that the hospital authorities would admit him again. Another seaman complained that he had been in bed for two weeks and the only change that had been made in his sheets was to turn the soiled side down. The standards and luxuries of American hospitals are not available to American seamen abroad and sometimes cause great discontent. If the port surgeon who sends a man to the hospital and who understands English were occasionally to visit the seaman many of the difficulties and discouragements of seamen would be overcome and care in hospitals would be made easier and more successful. As mentioned above, some of the port surgeons never visit the seamen whom they send to the hospital, and the other port surgeons do so very rarely. There is room for improvement in this respect. The port surgeon should be the connecting link between the ship and the hospital. He could also make more use of the out-patient departments of hospitals than he does at present.

A REVIEW OF CARBON-MONOXIDE POISONING

The United States Public Health Service has recently published a review of the literature on carbon-monoxide poisoning.¹ The historical statement points out that carbon-monoxide poisoning probably had its beginning during the prehistoric ages when man first came into possession of fire, although it was only comparatively recently that

¹ Public Health Bulletin No. 195.

the poisonous constituent in gas from burning carbonaceous material was determined to be carbon monoxide.

Each development of a more efficient method of producing heat for home and industrial fuel has so increased opportunities for poisoning by carbon monoxide that it has become one of the most frequent causes of accidents. A list is given of 24 possible sources of carbon monoxide in industrial life.

The first symptoms to attract attention were the subjective ones, such as headache, dizziness, disturbances of the stomach and heart, unconsciousness, and death. Later, objective symptoms, especially the peculiar coloring of the skin, and, with more intensive investigation, less obvious ones, such as hyperglycemia and glycosuria, were observed.

In the discussion of diagnosis of carbon-monoxide poisoning, attention is called to the necessity for doctors, coroners, safety engineers, and first-aid men to be able to recognize this poisoning, since the ordinary symptoms may be due to other causes. Methods are described for determining carbon monoxide in the air and in the blood.

A description is given of experiments that have been made to determine the division of a given amount of hemoglobin between the two gases, oxygen and carbon monoxide, the percentages of carbon monoxide in the air dangerous to breathe, and the length of time required for different percentages to cause symptoms in man and in animals. A table is given of the time required for various concentrations of carbon monoxide to produce 80 per cent of equilibrium value of blood saturation.

The pathology of carbon-monoxide poisoning developed rather slowly, owing to unscientific methods of conducting investigations and to a lack of knowledge of the processes of the human body on the part of investigators. The various theories held by investigators as to the pathological action of carbon monoxide are described. A great advance was made by the discovery that carbon monoxide displaces the oxygen in the oxyhemoglobin of the blood. This has led to the generally accepted theory that the pathological changes noted in the body are due to oxygen want, and that carbon monoxide has no pathological action other than that of displacing the oxygen in the hemoglobin of the blood and thus depriving the body of its necessary oxygen supply, with the resulting injury.

Methods of preventing carbon-monoxide poisoning, such as adequate ventilation, the proper adjustment and installation of gas heaters, and the use of protective devices when necessary to enter contaminated atmospheres, are discussed.

Under the heading of treatment are described the various methods that have been used, many of which have been discarded with advance in knowledge of the pathology of carbon-monoxide poisoning. The

best method so far found for emergency treatment is the administration of pure oxygen, or a mixture of 5 per cent carbon dioxide in oxygen, by means of an inhaler, together with the Schaefer prone pressure method of artificial respiration, if breathing has stopped or is weak and intermittent. The artificial respiration should be given persistently until normal breathing is resumed, or until after the heart has stopped.

The reports of 195 investigators and authors dealing with various phases of the subject of carbon-monoxide poisoning are reviewed, and a complete reference for each is given in the bibliography.

DEATHS DURING WEEK ENDED MAY 3, 1930

Summary of information received by telegraph from industrial insurance companies for the week ended May 3, 1930, and corresponding week of 1929. (From the Weekly Health Index, May 7, 1930, issued by the Bureau of the Census, Department of Commerce)

	Week ended May 3, 1930	Corresponding week, 1929
Policies in force.....	75, 786, 228	74, 084, 010
Number of death claims.....	15, 962	14, 945
Death claims per 1,000 policies in force, annual rate..	11. 0	10. 5

Deaths from all causes in certain large cities of the United States during the week ended May 3, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index, May 7, 1930, issued by the Bureau of the Census, Department of Commerce)

City	Week ended May 3, 1930		Annual death rate per 1,000 corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended May 3, 1930 ¹
	Total deaths	Death rate ¹		Week ended May 3, 1930	Corresponding week, 1929	
Total (64 cities).....	7, 775	13. 7	12. 6	747	673	165
Akron.....	33			2	4	18
Albany ⁴	34	14. 7	19. 1	1	2	22
Atlanta.....	96	19. 6	17. 0	6	8	63
White.....	51			4	4	127
Colored.....	45	(⁵)	(⁵)	2	4	32
Baltimore ⁴	251	17. 8	11. 7	14	14	43
White.....	174			11	6	47
Colored.....	77	(⁵)	(⁵)	3	8	49
Birmingham.....	83	19. 5	13. 8	4	8	37
White.....	41			1	3	15
Colored.....	42	(⁵)	(⁵)	3	5	71
Boston.....	259	16. 9	14. 3	25	19	70
Bridgeport.....	24			4	0	68
Buffalo.....	170	15. 0	13. 1	12	14	63
Cambridge.....	27	11. 2	10. 4	4	2	74
Camden.....	23	8. 9	11. 9	0	3	0
Canton.....	28	12. 5	8. 9	7	3	174
Chicago ⁴	719	11. 9	12. 2	80	75	71
Cincinnati.....	152			9	10	63
Cleveland.....	250	12. 9	10. 7	26	23	78
Columbus.....	83	14. 5	14. 3	5	10	49
Dallas.....	53	12. 7	12. 0	8	8	
White.....	40			6	7	
Colored.....	13	(⁵)	(⁵)	2	1	
Dayton.....	34	9. 6	10. 5	2	1	30

Footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended May 3, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index, May 7, 1930, issued by the Bureau of the Census, Department of Commerce)—Continued

City	Week ended May 3, 1930		Annual death rate per 1,000 corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended May 3, 1930 ¹
	Total deaths	Death rate ¹		Week ended May 3, 1930	Corresponding week, 1929	
Denver.....	74	13.1	13.8	13	7	136
Des Moines.....	36	12.4	9.3	3	1	52
Detroit.....	322	12.2	13.3	42	47	65
Duluth.....	20	8.9	10.7	1	1	27
El Paso.....	41	18.1	12.8	9	0	—
Erie.....	30	—	—	2	4	43
Fall River ⁴	27	10.5	13.2	7	6	160
Flint.....	32	11.2	14.4	5	7	58
Fort Worth.....	33	10.1	8.9	1	3	—
White.....	30	—	—	1	1	—
Colored.....	3	(⁵)	(⁵)	0	2	—
Grand Rapids.....	46	14.6	9.8	3	0	46
Houston.....	62	—	—	10	5	—
White.....	39	—	—	5	2	—
Colored.....	23	(⁵)	(⁵)	5	3	—
Indianapolis.....	134	18.3	14.7	5	6	37
White.....	84	—	—	5	4	43
Colored.....	50	(⁵)	(⁵)	0	2	0
Jersey City.....	80	12.8	11.4	10	9	87
Kansas City, Kans.....	24	10.6	9.3	4	2	95
White.....	17	—	—	3	2	80
Colored.....	7	(⁵)	(⁵)	1	0	217
Kansas City, Mo.....	47	11.6	13.6	7	10	54
Knoxville.....	33	16.3	7.9	7	0	164
White.....	26	—	—	7	0	182
Colored.....	7	(⁵)	(⁵)	0	0	0
Los Angeles.....	189	—	—	18	13	55
Louisville.....	86	13.6	12.5	7	3	61
White.....	66	—	—	7	1	69
Colored.....	20	(⁵)	(⁵)	0	2	0
Lowell.....	25	—	—	4	4	95
Lynn.....	26	12.9	9.9	3	1	79
Memphis.....	94	25.8	17.5	9	4	107
White.....	41	—	—	4	1	74
Colored.....	53	(⁵)	(⁵)	5	3	169
Milwaukee.....	108	10.3	10.7	13	20	65
Minneapolis.....	100	11.4	13.4	7	11	45
Nashville.....	35	13.1	14.9	3	5	46
White.....	22	—	—	2	3	41
Colored.....	13	(⁵)	(⁵)	1	2	63
New Bedford.....	21	—	—	3	2	77
New Haven.....	68	14.9	13.3	3	1	58
New Orleans.....	154	18.7	18.7	13	16	75
White.....	97	—	—	6	6	53
Colored.....	57	(⁵)	(⁵)	7	10	118
New York.....	1,659	14.4	12.9	165	147	69
Bronx Borough.....	211	11.6	10.8	14	11	33
Brooklyn Borough.....	531	12.0	11.2	69	59	73
Manhattan Borough.....	713	21.2	18.1	65	63	107
Queens Borough.....	152	9.3	8.1	14	11	41
Richmond Borough.....	52	18.0	16.3	3	3	56
Newark, N. J.....	130	11.3	13.3	17	12	89
Oklahoma City.....	32	—	—	2	1	39
Omaha.....	61	14.3	14.0	5	3	57
Paterson.....	41	14.8	11.0	5	4	87
Philadelphia.....	496	12.5	11.5	46	35	68
Pittsburgh.....	218	16.9	12.7	19	25	70
Portland, Oreg.....	65	—	—	7	7	86
Providence.....	70	13.8	10.9	10	4	92
Richmond.....	51	14.5	12.9	3	4	44
White.....	31	—	—	1	2	22
Colored.....	20	(⁵)	(⁵)	2	2	87
Rochester.....	70	11.1	11.1	5	3	44
St. Louis.....	201	12.4	13.0	13	13	42
St. Paul.....	48	—	—	2	3	20
Salt Lake City ⁴	33	12.5	12.8	5	6	79
San Antonio.....	78	18.6	18.4	13	12	—
San Diego.....	31	—	—	1	1	21
San Francisco.....	143	12.7	12.0	7	—	48

Footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended May 3, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index, May 7, 1930, issued by the Bureau of the Census, Department of Commerce)—Continued

City	Week ended May 3, 1930		Annual death rate per 1,000 corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended May 3, 1930 ¹
	Total deaths	Death rate ¹		Week ended May 3, 1930	Corresponding week, 1929	
Schenectady.....	29	16.2	13.4	1	3	31
Seattle.....	84	11.4	10.9	4	1	40
Somerville.....	25	12.7	11.7	0	3	0
Spokane.....	32	15.3	16.7	3	0	78
Springfield, Mass.....	39	13.6	11.5	2	2	32
Syracuse.....	58	15.2	12.3	8	6	99
Tacoma.....	22	10.4	13.2	1	0	26
Tokio.....	78	13.0	13.0	4	7	37
Trenton.....	45	16.9	12.0	3	1	56
Utica.....	33	16.5	17.0	4	2	114
Washington, D. C.....	154	14.5	13.1	17	11	99
White.....	101			11	4	95
Colored.....	53	(²)	(²)	6	7	100
Waterbury.....	16			1	1	26
Wilmington, Del.....	26	10.6	11.8	2	6	45
Worcester.....	61	16.1	10.3	8	0	104
Yonkers.....	20	8.6	7.3	1	1	24
Youngstown.....	39	11.7	8.1	7	4	110

¹ Annual rate per 1,000 population.

² Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.

³ Data for 72 cities.

⁴ Deaths for week ended Friday.

⁵ In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 35; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended May 3, 1930, and May 4, 1929

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended May 3, 1930, and May 4, 1929

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended May 3, 1930	Week ended May 4, 1929	Week ended May 3, 1930	Week ended May 4, 1929	Week ended May 3, 1930	Week ended May 4, 1929	Week ended May 3, 1930	Week ended May 4, 1929
New England States:								
Maine.....	1	3	2		110	125	0	0
New Hampshire.....	1				9	46	0	0
Vermont.....					49	0	0	0
Massachusetts.....	73	58	6	10	1,518	531	4	5
Rhode Island.....	7	8			7	100	0	0
Connecticut.....	6	14	1	0	43	376	4	0
Middle Atlantic States:								
New York.....	113	329	137	122	2,417	1,001	22	28
New Jersey.....	103	140	7	7	1,530	337	3	9
Pennsylvania.....	103	177			1,418	2,214	7	15
East North Central States:								
Ohio.....	22	49	13	23	900	1,962	5	19
Indiana.....	12	17			144	603	11	1
Illinois.....	159	199	10	16	626	2,082	10	15
Michigan.....	50	102		5	2,029	960	29	67
Wisconsin.....	18	13	16	20	697	1,535	4	3
West North Central States:								
Minnesota.....	30	16	1	1	209	698	2	4
Iowa.....	11	10		1	358	28	4	3
Missouri.....	35	35	1	32	147	206	10	15
North Dakota.....	3	5			26	119	5	4
South Dakota.....	3	3			61	32	0	1
Nebraska.....	15	15		1	826	50	2	3
Kansas.....	3	10	1	2	801	576	5	1
South Atlantic States:								
Delaware.....		3			18	13	0	0
Maryland.....	16	21	25	11	79	29	4	1
District of Columbia.....	12	10		2	25	20	0	0
West Virginia.....	8	13	29	6	153	533	1	2
North Carolina.....	14	23	13		45	53	7	1
South Carolina.....	10	10	457	372		36	0	0
Georgia.....	7	7	15	20	260	38	0	0
Florida.....	5	9	1		220	71	0	0
East South Central States:								
Kentucky.....					175	29	0	1
Tennessee.....	4	6	24	40	236	63	5	2
Alabama.....	4	8	85	33	108	218	1	0
Mississippi.....	9	4					5	1

¹ New York City only.

² Week ended Friday.

³ Figures for 1930 are exclusive of Oklahoma City and Tulsa.

*Cases of certain communicable diseases reported by telegraph by State health officers
for weeks ended May 3, 1930, and May 4, 1929—Continued*

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended May 3, 1930	Week ended May 4, 1929	Week ended May 3, 1930	Week ended May 4, 1929	Week ended May 3, 1930	Week ended May 4, 1929	Week ended May 3, 1930	Week ended May 4, 1929
West South Central States:								
Arkansas.....	4	3	11	21	119	18	2	4
Louisiana.....	19	16	6	8	72	61	3	4
Oklahoma ¹	6	10	21	21	230	61	2	3
Texas.....	18	28	9	68	230	176	1	0
Mountain States:								
Montana.....	2	2	-----	-----	3	375	2	4
Idaho.....	3	-----	-----	4	2	4	5	6
Wyoming.....	1	3	-----	1	19	39	0	0
Colorado.....	8	12	-----	-----	826	29	2	12
New Mexico.....	6	6	1	1	42	2	5	0
Arizona.....	1	-----	2	-----	175	1	3	4
Utah ²	6	1	3	1	252	8	6	6
Pacific States:								
Washington.....	7	15	35	-----	547	194	7	9
Oregon.....	3	7	10	22	100	278	0	3
California.....	43	55	15	26	2,053	101	4	24

Division and State	Polioomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended May 3, 1930	Week ended May 4, 1929	Week ended May 3, 1930	Week ended May 4, 1929	Week ended May 3, 1930	Week ended May 4, 1929	Week ended May 3, 1930	Week ended May 4, 1929
New England States:								
Maine.....	0	0	15	15	0	1	1	3
New Hampshire.....	0	0	24	10	0	1	0	1
Vermont.....	0	0	2	9	0	5	0	0
Massachusetts.....	1	3	235	268	0	1	1	3
Rhode Island.....	0	0	27	21	0	0	0	0
Connecticut.....	0	0	65	50	0	0	2	2
Middle Atlantic States:								
New York.....	2	1	556	502	19	3	12	19
New Jersey.....	0	0	221	178	0	0	0	2
Pennsylvania.....	2	0	403	504	1	0	8	26
East North Central States:								
Ohio.....	0	2	284	216	197	88	12	10
Indiana.....	0	0	169	422	164	85	3	3
Illinois.....	0	1	505	407	148	65	8	9
Michigan.....	2	1	273	548	65	43	7	4
Wisconsin.....	0	0	175	154	15	5	3	1
West North Central States:								
Minnesota.....	0	2	141	120	2	0	2	2
Iowa.....	0	0	57	118	93	57	0	7
Missouri.....	0	0	55	72	33	37	7	6
North Dakota.....	0	0	12	20	16	7	0	1
South Dakota.....	0	0	17	26	68	12	0	1
Nebraska.....	0	0	95	126	85	92	1	0
Kansas.....	0	0	106	128	49	54	4	3
South Atlantic States:								
Delaware.....	1	0	4	4	0	0	0	0
Maryland ¹	0	0	108	65	0	0	1	7
District of Columbia.....	0	0	23	15	0	0	0	2
West Virginia.....	1	0	39	29	39	5	13	14
North Carolina.....	0	1	40	19	15	12	1	6
South Carolina.....	2	4	7	12	0	10	8	14
Georgia.....	0	0	4	13	0	0	8	6
Florida.....	0	4	7	7	0	1	1	3
East South Central States:								
Kentucky.....	0	0	54	111	7	13	5	5
Tennessee.....	1	0	39	33	7	3	5	9
Alabama.....	0	0	8	12	6	3	6	9
Mississippi.....	0	1	8	21	11	0	5	5
West South Central States:								
Arkansas.....	0	0	1	23	4	2	3	1
Louisiana.....	1	0	18	52	7	7	11	5
Oklahoma ¹	0	1	17	25	67	66	4	0
Texas.....	0	0	26	71	40	51	6	2

¹ Week ended Friday.² Figures for 1930 are exclusive of Oklahoma City and Tulsa.

Division and State	Pollomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended May 3, 1930	Week ended May 4, 1929	Week ended May 3, 1930	Week ended May 4, 1929	Week ended May 3, 1930	Week ended May 4, 1929	Week ended May 3, 1930	Week ended May 4, 1929
Mountain States:								
Montana.....	0	0	31	24	8	13	0	0
Idaho.....	0	1	7	4	5	25	1	0
Wyoming.....	0	0	3	3	11	11	0	0
Colorado.....	0	0	28	39	21	16	4	0
New Mexico.....	0	0	10	7	3	1	5	0
Arizona.....	1	0	17	6	17	10	1	0
Utah ¹	0	0	12	12	0	9	0	0
Pacific States:								
Washington.....	0	0	24	38	64	57	3	0
Oregon.....	0	0	11	24	31	28	4	0
California.....	4	1	133	384	50	68	13	10

SUMMARY OF MONTHLY REPORTS FROM STATES

State	Menin- gococ- cus menin- gitis	Diph- theria	Influen- za	Ma- laria	Meas- les	Pella- gra	Polio- mye- litis	Scarlet fever	Small- pox	Ty- phoid fever
<i>February, 1930</i>										
Delaware	1	10	2		28		1	41	0	
<i>March, 1930</i>										
Kansas	20	69	19		2,486		1	627	423	1
Massachusetts	24	262	70	1	3,798		1	1,171	1	
<i>April, 1930</i>										
Indiana	56	83	66		599		0	749	690	1
Michigan	171	284	18	4	8,624		2	1,417	203	1
Nebraska	5	71			1,016		0	350	0	
Puerto Rico		33	22	626	144	3	1		0	2

<i>February, 1933</i>		Impactigo contagiosa:	Cases
Delaware	Cases	Kansas.....	1
Anthrax.....	1	Lead poisoning.....	
Chicken pox.....	40	Massachusetts.....	3
Undulant fever.....	2	Lethargic encephalitis.....	
Whooping cough.....	3	Kansas.....	1
		Massachusetts.....	5
<i>March, 1933</i>		Mumps.....	
Anthrax.....		Kansas.....	628
Massachusetts.....	2	Massachusetts.....	1,022
Chicken pox.....		Ophthalmia neonatorum:	
Kansas.....	524	Massachusetts.....	106
Massachusetts.....	974	Paratyphoid fever.....	
Conjunctivitis.....		Kansas.....	1
Kansas.....	1	Scabies:	
Dysentery:		Kansas.....	9
Massachusetts.....	3	Septic sore throat:	
German measles:		Kansas.....	1
Kansas.....	85	Massachusetts.....	194
Massachusetts.....	540		

	Cases		Cases
Tetanus:		Lothargio encephalitis:	
Kansas.....	1	Michigan.....	4
Massachusetts.....	3	Mumps:	
Trachoma:		Indiana.....	38
Kansas.....	1	Michigan.....	944
Massachusetts.....	1	Nebraska.....	113
Typhus fever:		Porto Rico.....	6
Kansas.....	1	Ophthalmia neonatorum:	
Undulant fever:		Porto Rico.....	1
Massachusetts.....	1	Puerperal septicemia:	
Vincent's angina:		Porto Rico.....	8
Kansas.....	1	Septic sore throat:	
Whooping cough.		Michigan.....	33
Kansas.....	388	Nebraska.....	5
Massachusetts.....	1,503	Tetanus:	
		Porto Rico.....	22
<i>April, 1930</i>		Trachoma.	
Chicken pox:		Porto Rico.....	3
Indiana.....	298	Undulant fever.	
Michigan.....	1,091	Indiana.....	3
Nebraska.....	215	Michigan.....	2
Colibacillosis		Nebraska.....	1
Porto Rico.....	3	Whooping cough.	
Dysentery.		Indiana.....	163
Porto Rico.....	15	Michigan.....	590
Filariasis.		Nebraska.....	131
Porto Rico.....	4	Porto Rico.....	114
Leprosy.			
Indiana.....	1		
Porto Rico.....	1		

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 96 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 31,975,000. The estimated population of the 90 cities reporting deaths is more than 30,460,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended April 26, 1930, and April 27, 1929

	1930	1929	Estimated expectancy
<i>Cases reported</i>			
Diphtheria:			
46 States.....	1,137	1,470	
96 cities.....	573	823	824
Measles			
46 States.....	10,620	14,668	
96 cities.....	8,351	5,099	
Meningococcus meningitis.			
46 States.....	223	274	
96 cities.....	137	139	
Poliomyelitis: 47 States	13	27	
Scarlet fever			
46 States.....	4,305	4,406	
96 cities.....	1,650	1,790	1,330
Smallpox:			
46 States.....	1,563	852	
96 cities.....	183	75	68
Typhoid fever:			
46 States.....	213	205	
96 cities.....	39	46	41
<i>Deaths reported</i>			
Influenza and pneumonia: 60 cities	911	749	
Smallpox: 60 cities	0	0	

City reports for week ended April 26, 1930

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1921 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneu- monia, deaths reported
		Cases, estimated expect- ancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND								
Maine:								
Portland	5	1	0		0	0	37	3
New Hampshire:								
Concord	0	0	0		0	0	0	3
Manchester	0	1	0		0	0	0	4
Vermont:								
Barre	2	0	0		0	7	0	0
Burlington	1	0	0		0	1	0	0
Massachusetts:								
Boston	42	35	22	3	1	485	55	38
Fall River	1	3	1	1	1	1	1	3
Springfield	13	2	2		0	0	4	1
Worcester	16	4	4		0	192	1	2
Rhode Island:								
Pawtucket	4	1	0		0	1	0	7
Providence	7	7	4		0	1	0	5
Connecticut:								
Bridgeport	0	5	0	3	3	5	0	3
Hartford	7	5	1		0	4	0	6
New Haven	18	1	1		0	11	6	7
MIDDLE ATLANTIC								
New York:								
Buffalo	18	10	10		0	38	8	22
New York	219	254	115	47	13	1,393	172	220
Rochester	13	8	2		0	21	1	4
Syracuse	29	3			0	8	37	6
New Jersey:								
Camden	1	8	8		0	2	1	5
Newark	19	14	32	2	0	433	22	8
Trenton	3	3	0	1	1	18	0	5
Pennsylvania:								
Philadelphia	110	62	13	8	4	375	103	61
Pittsburgh	40	16	38	1	0	339	7	18
Reading	7	2	0		1	1	5	3
Scranton	5	3	0		0	2	0	0
EAST NORTH CENTRAL								
Ohio:								
Cincinnati	11	7	2		1	48	10	12
Cleveland	112	24	13	4	4	8	42	22
Columbus	6	3	4	2	2	149	7	4
Toledo	38	3	3	1	1	103	25	2
Indiana:								
Fort Wayne		2						14
Indianapolis	17	4	2		0	6	6	2
South Bend	0	1	0		0	0	0	1
Terre Haute	3	1	0		0	15	0	
Illinois:								
Chicago	124	83	124	8	10	42	90	63
Springfield	0	0	0		0	2	0	0

City reports for week ended April 26, 1930—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneu- monia, deaths reported
		Cases, estimated expect- ancy	Cases reported	Cases reported	Deaths reported			
EAST NORTH CEN- TRAL—continued								
Michigan:								
Detroit.....	54	43	33	3	2	1,218	38	35
Flint.....	16	3	0	0	0	103	1	4
Grand Rapids.....	9	2	0	0	0	2	3	1
Wisconsin:								
Kenosha.....	8	0	0	0	0	2	0	0
Madison.....	14	0	0	0	0	27	1	6
Milwaukee.....	120	11	4	2	2	9	58	13
Racine.....	0	2	0	0	0	3	0	0
Superior.....	2	0	0	0	0	4	0	0
WEST NORTH CENTRAL								
Minnesota:								
Duluth.....	9	0	0	0	0	73	0	0
Minneapolis.....	66	13	0	0	2	51	75	3
St. Paul.....	27	8	0	1	1	6	15	8
Iowa:								
Davenport.....	0	0	0	0	0	36	0	0
Des Moines.....	0	1	0	0	0	7	0	0
Sioux City.....	0	0	0	0	0	0	0	0
Waterloo.....	14	0	0	0	0	2	0	0
Missouri:								
Kansas City.....	21	4	5	0	0	8	4	5
St. Joseph.....	1	0	0	0	0	2	0	2
St. Louis.....	41	34	22	1	0	11	20	0
North Dakota:								
Fargo.....	0	0	0	0	0	0	36	1
Grand Forks.....	0	0	0	0	0	0	0	0
South Dakota:								
Sioux Falls.....	0	0	1	0	0	11	0	0
Nebraska:								
Omaha.....	12	2	7	0	0	99	1	7
Kansas:								
Topeka.....	9	1	0	0	0	146	18	0
Wichita.....	24	1	1	0	0	97	1	1
SOUTH ATLANTIC								
Delaware:								
Wilmington.....	3	2	2	0	0	8	1	3
Maryland:								
Baltimore.....	173	22	5	11	3	20	21	32
Cumberland.....	3	0	1	0	0	0	0	0
Frederick.....	0	0	0	0	0	0	0	0
District of Columbia:								
Washington.....	30	11	13	3	0	30	0	20
Virginia:								
Lynchburg.....	9	1	2	0	0	101	0	1
Norfolk.....	24	0	1	0	0	5	61	3
Richmond.....	0	1	1	0	0	0	4	7
Roanoke.....	9	1	0	0	0	331	1	0
West Virginia:								
Charleston.....	3	0	2	2	0	7	1	2
Wheeling.....	16	2	0	0	0	6	0	4
North Carolina:								
Raleigh.....	5	0	0	0	0	0	0	0
Wilmington.....	8	0	1	0	0	0	0	2
Winston-Salem.....	19	0	2	0	0	1	18	1
South Carolina:								
Charleston.....	2	0	0	21	1	0	1	6
Columbia.....	3	0	0	0	0	0	1	4
Georgia:								
Atlanta.....	8	2	2	19	1	43	18	17
Brunswick.....	0	0	0	0	0	0	0	0
Savannah.....	3	0	1	2	0	1	0	1
Florida:								
Miami.....	3	1	1	0	0	12	2	3
St. Petersburg.....	0	0	0	0	0	0	0	1
Tampa.....	5	1	0	0	1	104	16	1

City reports for week ended April 26, 1930—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST SOUTH CENTRAL								
Kentucky:								
Covington.....	0	0	0	-----	0	0	0	1
Tennessee:								
Memphis.....	10	2	1	-----	1	1	23	8
Nashville.....	12	1	3	-----	1	31	0	6
Alabama:								
Birmingham.....	3	1	4	7	4	14	2	14
Mobile.....	0	1	0	-----	0	2	0	6
Montgomery.....	5	1	0	-----	-----	20	0	-----
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith.....	1	1	0	-----	-----	51	0	-----
Little Rock.....	1	0	0	-----	0	2	0	6
Louisiana:								
New Orleans.....	1	7	18	7	3	11	0	15
Shreveport.....	6	1	0	-----	0	7	5	1
Oklahoma:								
Oklahoma City..	3	2	1	1	0	41	2	3
Tulsa.....	4	1	0	-----	-----	100	0	-----
Texas:								
Dallas.....	14	3	3	-----	1	95	1	3
Fort Worth.....	6	1	0	-----	0	17	1	7
Galveston.....	0	0	0	-----	0	0	0	1
Houston.....	5	3	6	-----	0	1	0	8
San Antonio.....	1	2	2	-----	3	3	0	3
MOUNTAIN								
Montana:								
Billings.....	0	0	0	-----	0	1	6	0
Great Falls.....	1	0	0	-----	0	3	8	1
Helena.....	0	0	0	-----	0	0	0	0
Missoula.....	0	0	0	-----	0	0	0	0
Idaho:								
Boise.....	0	0	0	-----	0	0	1	2
Colorado:								
Denver.....	40	10	9	-----	2	771	26	11
Pueblo.....	5	1	0	-----	0	6	103	0
New Mexico:								
Albuquerque.....	7	0	1	-----	0	17	2	1
Arizona:								
Phoenix.....	1	0	0	-----	0	10	0	1
Utah:								
Salt Lake City..	5	3	1	-----	0	216	8	3
Nevada:								
Reno.....	1	0	0	-----	0	2	0	0
PACIFIC								
Washington:								
Seattle.....	33	2	1	-----	-----	254	81	-----
Spokane.....	32	2	1	-----	-----	5	0	-----
Tacoma.....	6	1	0	-----	0	70	0	1
Oregon:								
Portland.....	11	7	7	1	0	34	6	7
Salem.....	6	0	2	-----	0	1	7	0
California:								
Los Angeles.....	81	35	13	16	0	494	63	15
Sacramento.....	2	2	3	-----	0	36	26	0
San Francisco....	36	17	6	1	0	162	88	4

City reports for week ended April 26, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
NEW ENGLAND											
Maine:											
Portland	3	5	0	0	0	0	0	0	0	1	17
New Hampshire:											
Concord	0	0	0	0	0	0	0	0	0	0	9
Manchester	4	0	0	0	0	1	0	0	0	0	26
Vermont:											
Barre	1	0	0	0	0	1	0	0	0	0	3
Burlington	1	0	0	0	0	0	0	0	0	0	11
Massachusetts:											
Boston	69	86	0	0	0	12	1	0	0	52	237
Fall River	4	4	0	0	0	1	0	0	0	2	24
Springfield	9	10	0	0	0	0	0	0	0	5	38
Worcester	7	6	0	0	0	2	0	1	0	17	49
Rhode Island:											
Pawtucket	1	0	0	0	0	0	0	0	0	6	14
Providence	10	17	0	0	0	2	0	1	0	23	48
Connecticut:											
Bridgeport	11	6	0	0	0	2	0	0	0	0	41
Hartford	5	4	0	0	0	5	1	0	0	2	53
New Haven	7	6	0	0	0	1	1	0	0	10	49
MIDDLE ATLANTIC											
New York:											
Buffalo	26	24	0	1	0	10	0	0	0	9	153
New York	298	267	0	0	0	73	9	8	0	53	1,577
Rochester	13	8	0	0	0	3	0	0	0	2	72
Syracuse	11	23	0	0	0	1	0	1	0	55	54
New Jersey:											
Camden	5	3	0	0	0	2	0	1	0	0	47
Newark	31	36	0	0	0	8	1	0	0	10	101
Trenton	4	11	0	0	0	5	1	0	1	0	40
Pennsylvania:											
Philadelphia	94	136	0	0	0	43	3	0	0	17	543
Pittsburgh	30	18	0	0	0	12	0	0	0	27	179
Reading	6	1	0	0	0	0	0	0	0	14	31
Scranton	2	3	0	0	0	0	2	0	0	1	0
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	16	21	2	4	0	8	1	2	0	4	121
Cleveland	38	52	0	3	0	15	0	2	0	39	199
Columbus	7	5	1	8	0	3	0	1	1	11	399
Toledo	13	12	1	7	0	11	0	0	0	3	83
Indiana:											
Fort Wayne	4	1	1	0	0	0	0	0	0	0	0
Indianapolis	11	24	7	4	0	3	0	1	0	6	0
South Bend	4	14	1	1	0	2	0	0	0	0	17
Terre Haute	2	4	0	0	0	0	0	0	0	1	17
Illinois:											
Chicago	117	266	2	4	0	45	2	1	0	59	820
Springfield	5	1	0	0	0	2	0	0	0	3	18
Michigan:											
Detroit	108	132	1	1	0	29	1	2	1	58	336
Flint	8	19	2	0	0	5	1	0	0	10	31
Grand Rapids	9	10	1	1	0	0	0	0	0	4	26
Wisconsin:											
Kenosha	2	1	0	0	0	0	0	0	0	1	8
Madison	3	3	0	0	0	1	0	0	0	19	36
Milwaukee	29	22	2	0	0	5	0	1	0	20	118
Racine	5	6	0	0	0	0	0	0	0	1	12
Superior	3	0	0	0	0	0	1	0	0	0	5
WEST NORTH CENTRAL											
Minnesota:											
Duluth	7	4	0	0	0	1	0	0	0	23	20
Minneapolis	46	17	2	1	0	6	0	0	0	2	122
St. Paul	27	10	1	0	0	1	0	0	0	16	60
Iowa:											
Davenport	2	1	1	14	0	0	0	0	0	0	0
Des Moines	6	12	1	14	0	0	0	0	0	0	35
Sioux City	1	0	0	0	0	0	0	0	0	0	0
Waterloo	2	1	0	25	0	0	0	0	0	0	0

City reports for week ended April 26, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
WEST NORTH CEN- TRAL—continued											
Missouri:											
Kansas City.....	15	7	1	3	0	5	1	1	0	9	108
St. Joseph.....	3	5	0	0	0	0	0	0	0	0	27
St. Louis.....	33	57	3	6	0	17	1	0	0	17	244
North Dakota:											
Fargo.....	1	2	0	0	0	1	0	0	0	2	9
Grand Forks.....	1	0	0	3	—	—	0	0	—	0	—
South Dakota:											
Sioux Falls.....	1	0	1	0	—	—	0	0	—	0	8
Nebraska:											
Omaha.....	3	6	4	36	0	1	0	1	0	2	8
Kansas:											
Topeka.....	3	4	0	1	0	0	0	0	0	35	3
Wichita.....	3	14	1	1	0	0	0	0	1	5	31
SOUTH ATLANTIC											
Delaware:											
Wilmington.....	5	5	0	0	0	0	0	0	0	0	38
Maryland:											
Baltimore.....	33	84	0	0	0	13	2	2	0	14	235
Cumberland.....	0	0	0	0	0	0	0	0	0	0	11
Frederick.....	0	0	0	0	0	0	0	0	0	0	2
District of Colum- bia:											
Washington.....	24	10	1	0	0	8	1	0	0	2	157
Virginia:											
Lynchburg.....	0	0	0	0	0	0	0	0	0	7	10
Norfolk.....	2	4	0	0	0	2	0	0	0	1	—
Richmond.....	3	7	0	0	0	1	1	0	0	0	50
Roanoke.....	1	0	1	0	0	0	0	0	0	7	15
West Virginia:											
Charleston.....	1	0	0	0	0	0	0	2	0	4	15
Wheeling.....	2	1	0	0	0	0	1	0	0	3	24
North Carolina:											
Raleigh.....	0	0	1	0	0	2	0	0	0	3	21
Wilmington.....	0	0	0	0	0	1	0	0	0	10	15
Winston-Salem.....	0	0	2	0	0	3	0	0	0	3	10
South Carolina:											
Charleston.....	0	0	0	0	0	4	0	0	0	0	37
Columbia.....	0	0	0	0	0	0	0	0	0	5	19
Georgia:											
Atlanta.....	4	16	3	0	0	5	1	0	0	0	—
Brunswick.....	0	0	0	0	0	1	0	0	0	0	6
Savannah.....	1	0	1	0	0	0	0	2	0	0	34
Florida:											
Miami.....	0	0	0	0	0	4	1	0	0	5	28
St. Petersburg.....	0	—	0	—	0	0	0	0	0	—	10
Tampa.....	0	1	0	0	0	0	1	0	0	0	25
EAST SOUTH CEN- TRAL											
Kentucky:											
Covington.....	2	0	0	0	0	0	0	0	0	0	18
Tennessee:											
Memphis.....	7	16	1	0	0	3	1	0	0	4	80
Nashville.....	1	2	1	7	0	5	0	0	0	2	44
Alabama:											
Birmingham.....	2	2	3	0	0	4	1	0	0	7	60
Mobile.....	0	0	0	0	0	1	0	0	0	1	29
Montgomery.....	1	1	0	0	—	—	0	0	—	1	—
WEST SOUTH CEN- TRAL											
Arkansas:											
Fort Smith.....	0	0	0	0	—	—	0	0	—	2	—
Little Rock.....	0	0	—	1	0	3	0	0	0	0	—
Louisiana:											
New Orleans.....	7	10	0	0	0	13	2	5	1	3	172
Shreveport.....	0	0	0	0	0	0	1	0	0	0	27
Oklahoma:											
Oklahoma City.....	2	20	2	14	0	1	0	0	0	0	27
Tulsa.....	1	4	2	1	—	—	0	0	—	14	—
Texas:											
Dallas.....	3	4	2	3	0	4	0	1	0	1	54
Fort Worth.....	1	—	5	7	0	0	1	0	0	0	26
Galveston.....	0	0	0	0	0	0	0	0	0	0	9
Houston.....	1	0	0	4	0	3	0	1	1	0	72
San Antonio.....	—	3	0	3	0	13	1	0	0	0	79

City reports for week ended April 26, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
MOUNTAIN											
Montana:											
Billings.....	0	0	0	0	0	0	0	0	0	0	11
Great Falls.....	0	13	1	0	0	0	0	0	0	0	15
Helena.....	0	0	0	0	0	0	0	0	0	2	2
Missoula.....	1	0	0	5	0	0	0	0	0	0	3
Idaho:											
Boise.....	1	1	0	0	0	0	0	0	0	0	8
Colorado:											
Denver.....	12	7	0	0	0	9	0	0	0	74	67
Pueblo.....	1	0	0	1	0	1	0	0	0	4	5
New Mexico:											
Albuquerque.....	1	0	0	0	0	2	0	0	0	0	10
Arizona:											
Phoenix.....	0	2	0	4	0	4	0	0	0	0	19
Utah:											
Salt Lake City.....	2	2	1	0	0	2	0	0	0	46	38
Nevada:											
Reno.....	0	3	0	5	0	0	0	0	0	0	7
PACIFIC											
Washington:											
Seattle.....	7	17	4	3	-----	-----	1	0	-----	20	-----
Spokane.....	5	1	8	30	-----	-----	0	0	-----	21	-----
Tacoma.....	2	1	2	0	0	1	0	0	0	7	25
Oregon:											
Portland.....	5	2	8	19	0	4	1	2	0	25	78
Salem.....	0	1	1	0	0	0	0	0	0	1	-----
California:											
Los Angeles.....	28	42	5	12	0	23	2	0	0	21	251
Sacramento.....	2	4	1	7	0	2	0	1	0	0	25
San Francisco.....	20	22	1	2	0	8	0	1	0	1	163

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)			
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths	
NEW ENGLAND										
Massachusetts:										
Boston.....	1	0	0	0	0	0	0	0	0	0
Worcester.....	1	0	0	0	0	0	0	0	0	0
Connecticut:										
Bridgeport.....	0	1	0	0	0	0	0	0	0	0
MIDDLE ATLANTIC										
New York:										
Buffalo.....	2	0	0	0	0	0	0	0	0	0
New York.....	11	6	3	1	0	0	1	0	0	0
Syracuse.....	1	0	0	0	0	0	0	0	0	0
New Jersey:										
Newark.....	4	0	0	0	0	0	0	2	0	0
Pennsylvania:										
Philadelphia.....	5	1	0	0	0	0	0	0	0	0
Pittsburgh.....	12	1	0	0	0	0	0	0	0	1
EAST NORTH CENTRAL										
Ohio:										
Cincinnati.....	1	0	0	0	0	0	0	0	0	0
Cleveland.....	4	1	0	0	0	0	0	0	0	0
Columbus.....	0	0	1	1	0	0	0	0	0	0
Toledo.....	1	0	0	0	0	0	0	0	0	0
Indiana:										
Indianapolis.....	3	6	0	0	0	0	0	0	0	0
South Bend.....	1	0	0	0	0	0	0	0	0	0
Illinois:										
Chicago.....	10	5	0	0	0	0	0	0	0	0
Michigan:										
Detroit.....	21	9	1	1	0	0	0	0	0	0

City reports for week ended April 26, 1930—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
WEST NORTH CENTRAL									
Iowa:									
Waterloo.....	3	2	0	0	0	0	0	0	0
Missouri:									
Kansas City.....	4	2	0	0	0	0	0	0	0
St. Joseph.....	0	1	0	0	0	0	0	0	0
St. Louis.....	4	3	0	0	0	0	0	0	0
Nebraska:									
Omaha.....	1	0	0	0	0	0	0	0	0
Kansas:									
Topeka.....	1	0	0	0	0	0	0	0	0
SOUTH ATLANTIC									
Maryland:									
Baltimore.....	2	0	0	0	0	0	0	0	0
District of Columbia:									
Washington.....	1	1	0	0	1	0	0	0	0
West Virginia:									
Charleston.....	1	1	0	0	0	0	0	0	0
North Carolina:									
Winston-Salem.....	0	0	0	0	1	0	0	0	0
South Carolina:									
Charleston.....	0	0	0	0	4	2	0	0	0
Columbia.....	1	0	0	0	0	0	0	0	0
Georgia:									
Atlanta.....	0	1	0	0	0	1	0	0	0
Savannah.....	1	0	0	0	1	0	0	0	0
Florida:									
Miami.....	0	0	0	0	2	0	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis.....	24	10	0	0	0	0	0	0	0
Nashville.....	0	1	0	0	0	0	0	0	0
Alabama:									
Birmingham.....	0	0	0	1	0	0	0	0	0
Mobile.....	0	0	0	0	0	1	0	0	0
Montgomery.....	0	0	0	0	2	0	0	0	0
WEST SOUTH CENTRAL									
Louisiana:									
New Orleans.....	1	2	0	0	0	0	1	1	1
Texas:									
Dallas.....	1	1	0	0	2	3	0	0	0
Houston.....	0	0	0	0	0	1	0	0	0
MOUNTAIN									
Montana:									
Billings.....	1	1	0	0	0	0	0	0	0
Colorado:									
Denver.....	1	0	0	0	0	0	0	0	0
Utah:									
Salt Lake City.....	3	3	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle.....	0	0	0	0	0	0	0	0	0
Tacoma.....	1	0	0	0	0	0	0	0	0
Oregon:									
Portland.....	0	0	4	0	0	0	0	0	0
California:									
Los Angeles.....	0	1	0	0	0	0	0	1	0
San Francisco.....	0	2	0	0	3	0	0	0	0

*Typhus fever: 1 case at Savannah, Ga.

The following table gives the rates per 100,000 population for 98 cities for the 5-week period ended April 26, 1930, compared with those for a like period ended April 27, 1929. The population figures used in computing the rates are approximate estimates, authoritative figures for many of the cities not being available. The 98 cities reporting cases have an estimated aggregate population of more than 32,000,000. The 91 cities reporting deaths have more than 30,500,000 estimated population.

Summary of weekly reports from cities, March 23 to April 26, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929¹

DIPHTHERIA CASE RATES

	Week ended									
	Mar. 29, 1930	Mar. 30, 1929	Apr. 5, 1930	Apr. 6, 1929	Apr. 12, 1930	Apr. 13, 1929	Apr. 19, 1930	Apr. 19, 1929	Apr. 26, 1930	Apr. 27, 1929
98 cities.....	84	128	² 81	131	95	124	88	135	² 93	136
New England.....	51	101	⁴ 68	135	75	117	109	141	78	110
Middle Atlantic.....	84	187	78	190	97	166	87	198	104	194
East North Central.....	115	119	108	125	115	126	96	122	² 116	143
West North Central.....	63	139	51	75	87	83	85	112	² 68	85
South Atlantic.....	64	66	59	82	73	71	59	60	59	58
East South Central.....	54	41	34	27	7	75	20	7	54	55
West South Central.....	134	118	⁷ 161	114	164	122	220	99	108	126
Mountain.....	43	44	⁶ 27	44	77	61	9	70	86	78
Pacific.....	40	29	59	58	59	65	43	58	57	58

MEASLES CASE RATES

98 cities.....	899	716	¹ 1,041	839	1,222	824	1,255	896	¹ 1,362	838
New England.....	1,023	487	¹ 1,443	521	1,431	638	1,491	498	1,568	561
Middle Atlantic.....	644	154	832	174	1,019	180	1,156	116	1,266	153
East North Central.....	661	1,592	807	1,836	913	1,946	1,084	2,028	² 1,023	1,964
West North Central.....	890	1,784	842	1,963	1,174	1,657	989	2,124	² 968	1,713
South Atlantic.....	637	414	793	650	976	464	998	760	1,194	536
East South Central.....	1,093	69	594	89	371	130	337	55	459	21
West South Central.....	841	95	⁷ 938	248	773	232	538	175	635	278
Mountain.....	3,424	409	⁴ 1,883	618	7,475	192	6,617	209	8,573	366
Pacific.....	2,549	232	2,343	273	2,402	319	2,100	377	2,412	377

SCARLET FEVER CASE RATES

98 cities.....	315	318	² 308	290	327	270	305	268	² 209	205
New England.....	332	391	⁴ 418	341	321	317	368	242	319	292
Middle Atlantic.....	315	264	308	244	296	224	276	224	252	246
East North Central.....	336	453	381	420	428	372	395	418	² 366	451
West North Central.....	300	310	296	275	391	242	359	216	² 248	281
South Atlantic.....	249	167	253	94	282	123	277	90	227	97
East South Central.....	263	267	162	212	148	185	162	144	142	109
West South Central.....	120	274	⁷ 188	270	116	229	123	225	64	217
Mountain.....	446	78	⁶ 155	104	326	165	343	70	223	122
Pacific.....	239	311	196	314	253	374	168	372	205	894

¹ The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1930 and 1929, respectively.

² New Haven, Conn., San Antonio, Tex., and Great Falls, Mont., not included.

³ Fort Wayne, Ind., and Sioux City, Iowa, not included.

⁴ New Haven, Conn., not included.

⁵ Fort Wayne, Ind., not included.

⁶ Sioux City, Iowa, not included.

⁷ San Antonio, Tex., not included.

⁸ Great Falls, Mont., not included.

Summary of weekly reports from cities, March 23 to April 26, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929—Continued

SMALLPOX CASE RATES

	Week ended									
	Mar. 29, 1930	Mar. 30, 1929	Apr. 5, 1930	Apr. 6, 1929	Apr. 12, 1930	Apr. 13, 1929	Apr. 19, 1930	Apr. 20, 1929	Apr. 26, 1930	Apr. 27, 1929
96 cities.....	23	16	¹ 24	11	29	12	28	9	¹ 30	13
New England.....	2	11	⁴ 0	2	2	2	2	0	0	0
Middle Atlantic.....	0	0	0	0	0	0	0	0	0	0
East North Central.....	18	17	30	15	23	20	23	11	¹ 17	17
West North Central.....	97	25	85	17	146	8	137	10	¹ 143	13
South Atlantic.....	7	13	2	4	9	4	4	2	0	2
East South Central.....	20	41	0	7	13	7	20	0	47	0
West South Central.....	49	91	⁷ 22	76	30	76	75	11	41	23
Mountain.....	26	44	¹ 109	26	60	78	26	44	94	26
Pacific.....	83	23	83	17	104	10	83	60	128	80

TYPHOID FEVER CASE RATES

	8	10	¹ 5	5	5	12	6	10	¹ 6	8
98 cities.....	2	4	⁴ 5	4	0	9	7	7	4	4
New England.....	15	5	3	2	1	7	2	8	5	4
Middle Atlantic.....	3	17	2	7	1	11	3	4	¹ 6	4
East North Central.....	4	8	2	4	4	25	8	10	¹ 4	12
West North Central.....	5	13	4	4	20	13	20	24	11	17
South Atlantic.....	34	27	34	7	20	21	7	7	0	21
East South Central.....	7	19	⁷ 13	8	7	42	7	42	26	34
West South Central.....	0	0	¹ 18	0	43	0	17	0	0	0
Mountain.....	2	0	7	7	5	7	9	10	5	7
Pacific.....										

INFLUENZA DEATH RATES

	14	18	¹ 13	20	17	15	15	15	¹ 12	13
91 cities.....	9	4	⁴ 7	11	7	7	7	9	11	7
New England.....	11	12	15	16	21	14	15	10	9	12
Middle Atlantic.....	11	16	10	18	8	15	13	14	¹ 13	6
East North Central.....	6	18	9	27	9	6	18	18	9	12
West North Central.....	15	22	7	17	24	17	20	21	11	13
South Atlantic.....	110	90	44	75	52	30	66	15	44	30
East South Central.....	34	35	⁷ 32	47	27	31	27	51	27	43
West South Central.....	51	52	¹ 27	44	26	17	9	9	17	52
Mountain.....	3	16	0	19	15	22	3	13	0	13
Pacific.....										

PNEUMONIA DEATH RATES

	167	157	¹ 164	149	169	139	153	127	¹ 144	117
91 cities.....	202	171	¹ 164	101	171	126	146	114	173	144
New England.....	197	180	194	178	195	161	190	134	168	130
Middle Atlantic.....	118	132	146	135	126	126	115	119	¹ 109	99
East North Central.....	133	150	115	147	148	114	154	108	80	111
West North Central.....	194	159	170	144	211	165	185	146	192	127
South Atlantic.....	253	172	177	142	228	164	236	157	258	97
East South Central.....	176	125	⁷ 157	137	195	90	130	78	142	90
West South Central.....	172	131	¹ 191	122	180	113	163	122	146	87
Mountain.....	114	151	77	126	89	94	46	151	61	119
Pacific.....										

¹ New Haven, Conn., San Antonio, Tex., and Great Falls, Mont., not included.

² Fort Wayne, Ind., and Sioux City, Iowa, not included.

³ New Haven, Conn., not included.

⁴ Fort Wayne, Ind., not included.

⁵ Sioux City, Iowa, not included.

⁶ San Antonio, Tex., not included.

⁷ Great Falls, Mont., not included.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Week ended April 19, 1930.—The Department of Pensions and National Health reports cases of certain communicable diseases in Canada for the week ended April 19, 1930, as follows:

Province	Cerebro-spinal fever	Influenza	Small-pox	Typhoid fever
Prince Edward Island ¹				
Nova Scotia.....		3		
New Brunswick ¹				
Quebec.....	2			3
Ontario.....	3	2	43	1
Manitoba.....	1			
Saskatchewan.....			10	
Alberta.....	1		1	12
British Columbia.....			1	
Total.....	7	5	55	16

¹ No case of any disease included in the table was reported during the week.

Quebec—Communicable diseases—Weeks ended April 19 and 26, 1930.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the weeks ended April 19 and 26, 1930, as follows:

Disease	Week ended—		Disease	Week ended—	
	Apr. 19, 1930	Apr. 26, 1930		Apr. 19, 1930	Apr. 26, 1930
Cerebrospinal meningitis.....	2	6	Mumps.....	109	84
Chicken pox.....	39	60	Puerperal septicemia.....	2	4
Diphtheria.....	24	28	Scarlet fever.....	83	81
Erysipelas.....	2	8	Smallpox.....	3	
German measles.....	30	41	Tuberculosis.....	51	35
Influenza.....	3	4	Typhoid fever.....	3	22
Measles.....	183	65	Whooping cough.....	30	39

CUBA

Habana—Communicable diseases—April, 1930.—During the month of April, 1930, certain communicable diseases were reported in the city of Habana, Cuba, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Chicken pox.....	42		Measles.....	6	
Diphtheria.....	13	2	Scarlet fever.....	24	
Leprosy.....	2		Tuberculosis.....	51	14
Malaria ¹	8		Typhoid fever ¹	13	1

¹ Some of these cases were from the interior.

CHINA

Meningitis.—During the week ended April 26, 1930, two cases of meningitis, with two deaths, were reported at Hong Kong, China. Two cases of meningitis, with two deaths, were also reported at Canton during the week ended April 19.

PHILIPPINE ISLANDS

Meningitis.—During the week ended May 3, 1930, two cases of meningitis, with one death, were reported in Manila, P. I.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

From medical officers of the Public Health Service, American consuls, International Office of Public Hygiene, Pan American Sanitary Bureau, health section of the League of Nations, and other sources. The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

CHOLERA

[C indicates cases; D, deaths; P, present]

Place	Oct. 20- Nov. 16, 1929	Nov. 17- Dec. 14, 1929	Dec. 15, 1929-Jan. 12- Jan. 11, 1930	Week ended—											
				February, 1930		March, 1930					April, 1930				
				15	22	1	8	15	22	29	5	12	19	26	
China:															
Canton		2													
Hankow	2														
Manchuria—Dairen									1						
Nanking	P														
Swatow	12	2													
India	17, 240	19, 582	12, 350	6, 461	1, 577	1, 258	1, 515								
Basseln	10, 680	10, 903	6, 807	3, 006	877	765	900								
Bombay															
Calcutta	252	265	138	202	65	46	53	105	97	53	110	90			
Madras	129	114	90	110	45	27	25	56	73	25	51	5			
Nagapatam	3	2													
Rangoon	2	2													
Tuticorin	2	1	1	12											
India (French):	5	23	35	3											
Chander-nagor	3	6	9	1											
Karikal	5	14	1		1	2	1	1	1						
Pondicherry Province	5	12	1			2	1	1	1	1					
Indo-China (see also table below):															
Pnompenh	43	4	3	11		2	5	2							
Saigon and Cholon	37	3	3	8	1	2	3	1	1	2	1	2	6	17	12
	1	2	1	2				4	1	5	10	10	10	10	10

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases, D, deaths, P, present]

Place	Week ended—												
	February, 1930				March, 1930				April, 1930				
	Oct. Nov. 16, 1929	Nov. Dec. 24, 1929	Dec. Jan. 31, 1930	Jan. Feb. 8, 1930	1	8	15	22	29	5	12	19	26
Brazil:													
Porto Alegre.....	C 5												
Rio de Janeiro.....		1											
British Borneo—Sarawak.....				4	2	15							
British East Africa (see table below):													
Tanganyika.....	C 41	76	27	5		13	36	17	32	1			
	D 1	10	7			1	7	3	1				
British South Africa													
Northern Rhodesia.....	C 407	54											
Southern Rhodesia.....	C 6	28	33	1	6								
D		4	6										
Canada:													
Alberta:													
Edmonton.....	C 12	22	15	22		1	3	2	5	2	1	3	
British Columbia—Vancouver.....	C 12	11	13	19		1		1	2	1	2		
Manitoba.....	C 9	14	17	19		4	1	6	1	7	3	9	8
Ontario:													
Fort William.....	C 17	63	31	63		28	8	50	38	27	26	9	17
London.....	C 4			4									
Niagara Falls.....													
North Bay.....	C 5	2		2		1							
Ottawa.....	C 1	4	7	10		2	2	6	9		6	4	8
Sarnia.....	C 1												7
Toronto.....	C 2			2									
Windsor.....	C 2												
Quebec.....	C 22	10	3	11									
Montreal.....													
Saskatchewan.....	C 11	40	61	86		64	10	9	11	15	12	3	
Regina.....													
Saskatoon.....	C 13		34										
Ceylon:													
Angoda, Western Province.....						10							
						1							
Colombo.....		1	1	1	2	1							
					2	2							

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[Indicates cases, D, deaths; P, present]

Place	Week ended—													
	Oct. 29-30, 1929		Nov. 1-2, 1929		Dec. 1-2, 1929		Jan. 1-2, 1930		Feb. 1-2, 1930		March, 1930			
	1-10	11-20	1-10	11-20	1-10	11-20	1-10	11-20	1-10	11-20	1-10	11-20	21-31	Apr. 1-10, 1930
Turkey (see table below).														
Union of South Africa:														
Cape Province:														
Natal:	C	P	P	P	P	P	P	P	P	P	P	P		
Orange Free State:	C	P	P	P	P	P	P	P	P	P	P	P		
Transvaal:	C	P	P	P	P	P	P	P	P	P	P	P		
Upper Volta:	C	P	P	P	P	P	P	P	P	P	P	P		
Zanzibar:	C	P	P	P	P	P	P	P	P	P	P	P		
On vessel:														
S. S. Tairoa, at Liverpool, from London:	C													
S. S. Karagola, at Zanzibar, from India:	C													
S. S. Karo, at Zanzibar:	C													
S. S. Taipaku, at Mandla, from Australia:	C													
S. S. Karagola, at Lorenzo Marques, from India:	C													
Belgian Congo:	C	42	41	31										
Dahomey:	D	2	4											
Indo-China (see also table above):	C	12	19											
Ivory Coast:	C	12	19											
Sudan (French):	C	12	19											
Syria: Beirut:	D	28	10	9	6	18	46	4	7	31	12	31		
Taiwan: Taihoku:	D	1	6	6	6	18	46	4	7	31	12	31		

Place	Oct. to- ber, 1929	No- vem- ber, 1929	Dec- em- ber, 1929	Jan- uary, 1930	Feb- ruary, 1930	March, 1930	De- cem- ber, 1929	Jan- uary, 1930	Feb- ruary, 1930	March, 1930
Bolivia: La Paz.	C	120	22							
British East Africa (see also table above)										
Kenya.	C									
Chosen.	C	27	168	12	12	6				
Mexico: Durango (see also table above).	D	2	4	2	6	3				
Morocco.	C	12	51	29	71					

Place	Week ended—																							
	Oct. 20- Nov. 15, 1929			Nov. 17- Dec. 14, 1929			Dec. 16- Jan. 11, 1930			January, 1930			February, 1930			March, 1930					April, 1930			
	18	25	1	8	15	22	29	5	12	19	26	1	8	15	22	29	5	12	19	26				
Algeria:																								
Algers.....	C	2																						
Constantine Department.....	C	1																						
Oran.....	C	1																						
Bolivia: La Paz.....	C	13	11																					
Brazil: Sao Paulo.....	C	9	4																					
Bulgaria.....	C	1																						
Sofia.....	C	1																						
Chile.....	C	1																						
Talcahuano.....	D																							
Valparaiso.....	C																							
China: Tientsin.....	C																							

Press reports show that 10 deaths from typhus fever occurred in Sao Paulo, Brazil, from Nov. 3 to 30, 1929.

Turkey (see table below).

Union of South Africa.

Cape Province.

Natal.

Orange Free State.

Transvaal.

Yugoslavia (see table below).

Place	Octo-ber, 1929	Novem-ber, 1929	Decem-ber, 1929	Janu-ary, 1930	Febru-ary, 1930	March, 1930	Place	Octo-ber, 1929	Novem-ber, 1929	Decem-ber, 1929	Janu-ary, 1930	Febru-ary, 1930	March, 1930
Chosen: Seoul.	C		1	19	17		Liobunna	6	4	5	2	70	62
Czechoslovakia.	C	3						1	1	1		5	4
France.	C		1				Peru: Arequipa.	1					
Greece: Athens.	C		5	12	6	3	Turkey.	10	2	4	2	3	1
Latvia.	C	7	2	18			Yugoslavia.	1		6	26	33	46
										1	3	5	2

YELLOW FEVER

On April 22, 1930, 2 cases of yellow fever were reported at Muge, Brazil. Muge is on the Leopoldina Railway, between Rio de Janeiro and Niteroy.

X

UNITED STATES TREASURY DEPARTMENT

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SPECIAL ARTICLES

**An Anemia of Dogs Produced by the Feeding of Onions
Fundamentals in Public Health Administration Policy
Review of Current Prevalence of Communicable Diseases
Sickness Among Industrial Employees, Last Quarter, 1929**



**UNITED STATES
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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. R. C. WILLIAMS, *Chief of Division*

The PUBLIC HEALTH REPORTS are issued weekly by the United States Public Health Service through its Division of Sanitary Reports and Statistics, pursuant to acts of Congress approved February 15, 1893, and August 14, 1912.

They contain: (1) Current information of the prevalence and geographic distribution of preventable diseases in the United States in so far as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other communicable diseases throughout the world. (2) Articles relating to the cause, prevention, or control of disease. (3) Other pertinent information regarding sanitation and the conservation of the public health.

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NO. 21

AN ANEMIA OF DOGS PRODUCED BY FEEDING ONIONS¹

By W. H. SEBRELL, *Assistant Surgeon, United States Public Health Service*

In the course of an experiment designed to test the blacktongue preventive value of onions, it was observed that the experimental animals were all suffering from a severe anemia. Since the basic diet was one which had been used in the Hygienic Laboratory for a number of years without producing any observed anemia, it appeared that the onions were probably responsible for the condition. A series of experiments was accordingly carried out in order to determine the anemia-producing potency, in the dog, of various quantities of mature onions, both cooked and raw.

Seven dogs were selected and offered our stock diet No. 326 (Table 1), which has been used in this laboratory for over a year as a reconditioning diet and which has proved adequate for maintaining, breeding, and raising dogs.

TABLE 1.—*Composition of stock diet No. 326*¹

[Total calories, 2,400]

Articles of diet	Quantity	Nutrients		
		Protein	Fat	Carbo- hydrate
	Grams	Grams	Grams	Grams
Graham flour.....	380	47.1	8.0	279.0
Whole milk powder.....	120	31.0	35.0	45.0
Dried pork liver.....	60	40.6	6.4	5.8
Brewery yeast.....	20	8.6	0.2	7.8
Cod-liver oil.....	10	-----	10.0	-----
Calcium carbonate.....	6	-----	-----	-----
Sodium chloride.....	6	-----	-----	-----
Total nutrients.....	-----	127.3	59.6	337.6
Nutrients per 1,000 calories.....	-----	53.0	24.8	140.6

¹ The graham flour and sodium chloride are stirred into water and cooked in a double boiler of enamel ware for about 1½ hours. Then the other ingredients are well stirred in, the total weight being brought to 2,400 grams with water (so that 1 gram represents 1 calorie), and this finished mixture is served to the dog ad libitum.

After varying lengths of time on this diet, during which hemoglobin determinations and red cell, white cell, and reticulated cell counts were made, quantities of onions, as shown in Table 2, were incorporated in the stock diet and offered daily to each animal.

¹ Submitted for publication Apr. 23, 1930.

TABLE 2.—*Quantity of onions incorporated in stock diet daily*

Dog No.	Date	Weight	Total amount of onions in diet	Quantity of onions per kilo of body weight	Method of preparation
		Kilograms	Grams	Grams	
167.....	Nov. 11, 1929.....	5.7	125	22	Cooked.
	Dec 14, 1929.....	5.9	200	34	Do.
136.....	Jan. 7, 1930.....	9.0	50	6	Do.
	Feb. 26, 1930.....	9.2	150	16	Do.
129.....	Dec. 14, 1929.....	7.3	200	27	Do.
110.....	Jan. 17, 1930.....	9.8	100	10	Do.
	Feb. 28, 1930.....	9.6	200	21	Do.
191.....	Nov. 11, 1929.....	8.0	125	15	Do.
	Dec 14, 1929.....	8.7	200	23	Do.
194.....	Feb 8, 1930.....	6.2	95	15	Raw.
195.....	Feb. 7, 1930.....	6.5	130	20	Do.

The general methods of caring for and feeding the animals in this laboratory have already been described by Goldberger and his associates (1) (2) in connection with experiments on blacktongue. It is sufficient to repeat that each animal is kept in an individual kennel, having a concrete floor and containing a wooden bench. Food is served in a metal container once each day and any food remaining the next morning is collected and weighed. A supply of drinking water is constantly available. The stock diet is so designed that 1 gram represents 1 calorie. Each dog is given a daily amount of this diet which is intended to be only enough for the maintenance of normal body weight. In the experiments here reported no account has been taken of the extra calories added by the onion supplement, since the caloric intake of the animal does not appear to be pertinent in connection with these experiments. Most of the animals have been previously used in experiments on blacktongue, but such animals were not used in these experiments until after at least one month of reconditioning on the stock diet.

The cooked onions were prepared as follows: Sound, mature onions of the best quality for human consumption were selected, peeled, and run through a food chopper. They were then cooked in a double boiler for 1½ hours, and a quantity of cooked onions equivalent to the weight of the onions before cooking was then thoroughly mixed into the dog's daily ration of stock diet and served. In the case of the raw onions they were peeled, chopped, weighed, and mixed into the daily ration of stock diet.

The hemoglobin determinations were made by the Newcomer method and the result was expressed in grams per 100 cubic centimeter of blood. The red and white cell counts were made in the usual manner of making cell counts in clinical laboratories and were all done by one individual. The differential white cell counts were made on 200 cells. The reticulated red cell counts were made on the

dried smear, and in each instance at least 1,000 cells were counted in arriving at a percentage. Blood was obtained from the margin of the ear.

The significant details in regard to each of the experimental animals are as follows:

Dog 110.—On stock diet No. 326 from October 9, 1929, to January 17, 1930.

January 14, 1930: Weighs 9.8 kilos.

January 17: Begins daily supplement of 100 grams of onions.

February 25: Weighs 9.6 kilos.

February 28: Onion supplement increased to 200 grams daily.

March 25: Weighs 9.8 kilos.

TABLE 3.—Blood examinations of dog 110

Date	Hemoglobin, grams per 100 cubic centimeter	Red cell count	White cell count	Reticulated red cells per thousand
1929				
Nov. 19.....	13.6	6,700,000	13,300	4
Nov. 23.....	16.5	9,000,000	9,300	2
Nov. 27.....	16.3	7,600,000	9,200	3
Dec. 2.....	17.3	8,000,000	10,200	3
Dec. 5.....	16.7	8,000,000	9,600	3
Dec. 9.....	16.5	6,800,000	9,500	2
Dec. 12.....	16.2	6,600,000	11,200	4
Dec. 16.....	15.2	7,700,000	10,000	2
Dec. 19.....	16.6	7,700,000	11,900	6
Dec. 26.....	16.7	8,000,000	19,000	2
1930				
Jan. 2.....	16.6	7,400,000	11,200	6
Jan. 4.....	17.2	6,500,000	11,600	6
Jan. 9.....	17.3	6,700,000	10,300	2
Jan. 13.....	16.2	7,400,000	9,900	7
Jan. 16.....	16.6	6,600,000	9,400	3
Jan. 17 ¹				
Jan. 20.....	15.0	6,200,000	10,200	1
Jan. 23.....	16.1	6,000,000	11,000	2
Jan. 27.....	15.7	5,700,000	12,700	12
Jan. 30.....	14.5	5,300,000	16,400	4
Feb. 3.....	15.3	5,500,000	12,800	11
Feb. 6.....	15.6	5,600,000	9,100	16
Feb. 10.....	16.4	5,300,000	8,300	6
Feb. 13.....	13.1	5,000,000	10,200	5
Feb. 17.....	11.7	5,600,000	16,000	5
Feb. 20.....	12.7	4,700,000	10,000	7
Feb. 24.....	12.5	5,600,000	9,900	7
Feb. 27.....	14.3	5,800,000	10,900	8
Feb. 28 ¹				
Mar. 3.....	14.2	5,700,000	5,900	13
Mar. 6.....	15.4	6,000,000	9,100	9
Mar. 11.....	13.4	5,200,000	10,500	9
Mar. 14.....	12.7	5,200,000	11,400	25
Mar. 18.....	11.3	5,000,000	10,200	15
Mar. 21.....	11.5	4,500,000	11,300	19
Mar. 25.....	12.7	4,800,000	11,100	22
Mar. 28.....	12.4	5,500,000	9,400	29
Apr. 8.....	10.8	5,000,000	7,900	11
Apr. 11.....	11.8	4,300,000	12,300	12

¹ Onion supplement increased to 21 grams per kilo of body weight.

Dog 129.—On stock diet No. 326 from October 22 to December 14, 1929.

December 10, 1929: Weighs 7.3 kilos.

December 14: Begins daily supplement of 200 grams of cooked onions.

March 25, 1930: Weighs 8.2 kilos.

TABLE 4.—*Blood examination of dog 129*

Date	Hemoglobin, grams per 100 cubic centimeters	Red cell count	White cell count	Reticulated red cells per thousand
1929				
Nov. 19.....	14.5	8,400,000	9,400	3
Nov. 23.....	16.3	8,100,000	9,800	1
Nov. 27.....	16.1	7,000,000	11,700	2
Dec. 2.....	15.8	6,400,000	11,600	8
Dec. 5.....	16.4	6,900,000	13,700	8
Dec. 9.....	16.9	7,500,000	7,000	8
Dec. 12.....	18.2	7,500,000	8,100	7
Dec. 13.....	17.4	8,500,000	8,600	1
Dec. 14 ¹				
Dec. 16.....	18.2	7,900,000	10,100	15
Dec. 18.....	14.5	8,400,000	10,700	10
Dec. 19.....	13.5	5,500,000	12,600	2
Dec. 21.....	13.1	5,700,000	16,300	20
Dec. 23.....	8.6	4,100,000	20,500	92
Dec. 26.....	8.2	4,000,000	21,900	70
Dec. 28.....	8.7	3,200,000	13,200	132
1930				
Jan. 2.....	13.4	5,400,000	6,900	30
Jan. 6.....	13.4	5,500,000	6,200	24
Jan. 9.....	14.4	6,300,000	8,700	14
Jan. 13.....	13.8	6,400,000	8,300	31
Jan. 16.....	14.4	6,400,000	16,300	15
Jan. 20.....	13.4	5,700,000	15,400	20
Jan. 23.....	14.2	5,500,000	12,900	36
Jan. 27.....	13.5	4,200,000	22,300	36
Jan. 30.....	12.5	4,900,000	17,200	18
Feb. 3.....	12.8	4,600,000	13,900	34
Feb. 6.....	11.6	4,900,000	11,900	46
Feb. 10.....	14.2	4,900,000	13,700	74
Feb. 13.....	12.4	5,200,000	12,200	65
Feb. 18.....	11.4	5,000,000	12,200	37
Feb. 20.....	11.4	5,000,000	16,600	40
Feb. 24.....	10.2	5,000,000	15,800	32
Feb. 27.....	13.2	5,100,000	15,500	4
Mar. 3.....	12.8	5,500,000	11,600	34
Mar. 6.....	14.5	6,000,000	9,600	17
Mar. 11.....	14.7	5,700,000	9,800	28
Mar. 14.....	14.3	5,800,000	11,100	36
Mar. 18.....	14.5	5,300,000	12,900	16
Mar. 21.....	14.4	5,700,000	10,700	48
Mar. 25.....	15.5	6,000,000	10,500	17
Mar. 28.....	14.5	5,800,000	9,600	40
Apr. 8.....	10.6	4,900,000	17,900	56

¹ Began daily supplement of 27 grams of cooked onions per kilo of body weight.

Dog 136.—On stock diet No. 326 from October 22, 1929, to January 7, 1930.
January 7, 1930: Begins daily supplement of 50 grams of cooked onions. Weighs 9 kilos.

February 25: Weight 9.2 kilos.

February 26: Onion supplement increased to 150 grams daily.

March 25: Weighs 9.4 kilos.

TABLE 5.—*Blood examinations of dog 136*

Date	Hemoglobin, grams per 100 cubic centimeters	Red cell count	White cell count	Reticulated red cells per thousand
1929				
Nov. 20.....	14.5	6,900,000	10,300	1
Nov. 21.....	15.4	6,100,000	8,900	2
Nov. 27.....	16.0	6,000,000	13,000	1
Dec. 2.....	14.5	6,500,000	11,200	1
Dec. 5.....	15.7	6,600,000	12,400	2
Dec. 9.....	16.5	6,900,000	10,600	1
Dec. 12.....	16.3	6,200,000	11,400	2
Dec. 16.....	17.3	7,000,000	11,000	10
Dec. 19.....	14.6	6,200,000	13,800	3
Dec. 28.....	13.7	6,300,000	15,500	5
1930				
Jan. 2.....	16.5	5,900,000	13,000	3
Jan. 6.....	18.4	7,500,000	17,000	8
Jan. 7 ¹				
Jan. 9.....	16.6	6,400,000	12,200	4
Jan. 13.....	15.7	6,000,000	12,800	1
Jan. 16.....	16.5	6,600,000	11,000	2
Jan. 20.....	14.3	5,900,000	11,700	1
Jan. 23.....	14.6	5,400,000	13,100	7
Jan. 27.....	15.7	5,300,000	11,200	5
Jan. 30.....	15.6	6,000,000	11,000	4
Feb. 3.....	15.5	5,000,000	11,500	16
Feb. 6.....	13.5	5,600,000	12,300	5
Feb. 10.....	16.5	5,600,000	13,100	22
Feb. 13.....	11.6	4,900,000	11,400	24
Feb. 17.....	10.8	5,000,000	12,000	12
Feb. 20.....	12.5	4,800,000	16,100	8
Feb. 25.....	13.5	5,700,000	11,000	4
Feb. 26 ¹				
Feb. 27.....	15.1	5,400,000	12,200	63
Mar. 1.....	11.5	5,300,000	11,300	6
Mar. 3.....	12.4	5,400,000	11,400	5
Mar. 6.....	13.6	4,400,000	11,600	12
Mar. 12.....	12.3	4,000,000	11,300	9
Mar. 14.....	11.5	4,800,000	12,300	22
Mar. 18.....	10.6	4,200,000	13,700	17
Mar. 21.....	12.3	5,300,000	13,800	12
Mar. 25.....	13.5	4,900,000	13,600	3
Mar. 28.....	11.3	4,100,000	12,500	12
Apr. 9.....	10.3	3,700,000	15,800	9
Apr. 12.....	8.7	3,900,000	15,200	23

¹ Begins daily supplement of 6 grams of cooked onions per kilo of body weight.

² Onion supplement increased to 16 grams per kilo of body weight.

Dog 167.—On stock diet No. 326 from August 17 to November 11, 1929.

November 5, 1929: Weighs 5.7 kilos.

November 11: Begins daily supplement of 125 grams of cooked onions.

December 10: Weighs 5.9 kilos.

December 14: Onion supplement increased to 200 grams daily.

January 17, 1930: Onion supplement discontinued.

January 21: Weighs 6.1 kilos.

TABLE 6.—*Blood examinations of dog 167*

Date	Hemoglobin, grams per 100 cubic centimeters	Red cell count	White cell count	Reticulated red cells per thousand
1929				
Nov. 1.....	13.5	7, 100, 000	10, 200	.....
Nov. 6.....	15.5	6, 600, 000	10, 600	1
Nov. 8.....	16.5	7, 000, 000	9, 200	2
Nov. 11 ¹	14.4	6, 300, 000	9, 900	2
Nov. 14.....	8.2	4, 100, 000	21, 400	40
Nov. 16.....	4.3	2, 600, 000	22, 500	110
Nov. 18.....	3.5	1, 800, 000	16, 000	100
Nov. 21.....	7.7	3, 100, 000	7, 700	100
Nov. 25.....	9.7	3, 700, 000	7, 900	40
Nov. 29.....	9.6	4, 200, 000	8, 400	10
Dec. 3.....	10.2	4, 200, 000	13, 700	30
Dec. 6.....	11.3	4, 600, 000	15, 900	4
Dec. 10.....	11.5	4, 500, 000	13, 000	10
Dec. 13.....	11.8	5, 200, 000	11, 600	15
Dec. 14 ²				
Dec. 17.....	11.3	5, 000, 000	12, 600	40
Dec. 21.....	11.5	5, 000, 000	15, 100	28
Dec. 24.....	10.5	5, 000, 000	14, 800	20
Dec. 28.....	10.7	4, 000, 000	16, 500	21
1930				
Jan. 4.....	13.4	5, 100, 000	11, 600	40
Jan. 8.....	11.3	5, 200, 000	18, 500	34
Jan. 11.....	10.4	4, 700, 000	17, 800	31
Jan. 15.....	10.6	4, 600, 000	14, 900	23
Jan. 17 ³				
Jan. 18.....	10.3	3, 800, 000	14, 600	42
Jan. 22.....	13.5	5, 000, 000	11, 000	48
Jan. 25.....	13.5	5, 000, 000	10, 400	8
Jan. 29.....	14.3	5, 600, 000	9, 700	2
Feb. 1.....	15.5	5, 600, 000	8, 100	2
Feb. 5.....	16.5	5, 900, 000	7, 400	4
Feb. 8.....	17.4	5, 300, 000	7, 000	2

¹ Began daily supplement of 22 grams of cooked onions per kilo of body weight.

² Onion supplement increased to 34 grams per kilo of body weight.

³ Onion supplement discontinued.

Dog 191.—On stock diet No. 326 from June 27 to November 11, 1929.
 November 5, 1929: Weighs 8 kilos.
 November 11: Begins daily supplement of 125 grams of cooked onions.
 December 10: Weighs 8.7 kilos.
 December 14: Onion supplement increased to 200 grams daily.
 March 25, 1930: Weighs 9 kilos.

TABLE 7.—*Blood examinations of dog 191*

Date	Hemoglobin, grams per 100 cubic centimeters	Red cell count	White cell count	Reticulated red cells per thousand
1929				
Nov. 6.....	18.5	6,800,000	16,000	7
Nov. 8.....	18.4	8,000,000	12,800	3
Nov. 11 ¹	16.4	7,700,000	12,500	2
Nov. 14.....	12.4	6,000,000	13,100	6
Nov. 16.....	10.2	5,400,000	17,700	4
Nov. 18.....	9.2	4,800,000	19,200	14
Nov. 21.....	7.7	3,000,000	12,400	50
Nov. 25.....	8.7	3,600,000	14,900	100
Nov. 29.....	10.1	4,700,000	9,200	40
Dec. 3.....	11.2	5,700,000	12,600	20
Dec. 6.....	12.3	5,800,000	10,700	10
Dec. 10.....	14.7	5,200,000	13,300	6
Dec. 13.....	15.4	7,300,000	13,700	5
Dec. 14 ²				
Dec. 17.....	13.4	7,600,000	14,300	15
Dec. 21.....	15.6	6,500,000	11,100	3
Dec. 24.....	13.5	6,900,000	19,000	9
Dec. 28.....	13.5	5,100,000	15,000	10
1930				
Jan. 4.....	12.5	5,000,000	17,100	5
Jan. 8.....	10.3	4,500,000	18,000	5
Jan. 11.....	10.3	4,700,000	14,500	13
Jan. 15.....	11.2	5,000,000	14,100	33
Jan. 18.....	9.7	4,100,000	10,000	11
Jan. 22.....	12.4	5,000,000	6,800	10
Jan. 25.....	10.6	4,000,000	10,300	11
Jan. 29.....	10.7	5,200,000	11,000	6
Feb. 1.....	12.8	5,000,000	11,300	12
Feb. 5.....	11.5	5,500,000	11,800	4
Feb. 8.....	11.4	4,900,000	12,600	8
Feb. 12.....	10.5	4,500,000	14,000	5
Feb. 15.....	10.3	4,800,000	11,700	14
Feb. 20.....	10.8	5,700,000	14,900	22
Feb. 26.....	14.3	5,300,000	12,600	6
Mar. 1.....	15.6	6,200,000	10,300	1
Mar. 5.....	15.7	6,300,000	8,700	10
Mar. 8.....	15.7	6,600,000	10,900	9
Mar. 12.....	16.3	7,000,000	13,500	11
Mar. 15.....	14.5	6,600,000	7,900	12
Mar. 19.....	17.4	7,000,000	16,700	17
Mar. 22.....	17.3	7,600,000	12,200	23

¹ Began daily supplement of 15 grams of cooked onions per kilo of body weight.² Onion supplement increased to 23 grams per kilo of body weight.

Dog 194.—On stock diet No. 326 from December 31, 1929, to February 8, 1930.
 February 4, 1930: Weighs 6.2 kilos.
 February 8: Begins daily supplement of 95 grams of raw onions in stock diet.
 February 17: Onion supplement discontinued.
 February 18: Weighs 6.2 kilos.

TABLE 8.—*Blood examinations of dog 194*

Date	Hemoglobin, grams per 100 cubic centimeters	Red cell count	White cell count	Reticulated red cells per thousand
1930				
Jan. 24.....	15.7	6,600,000	11,000	8
Jan. 28.....	16.2	6,600,000	13,200	11
Jan. 31.....	13.7	6,600,000	15,300	2
Feb. 4.....	16.4	6,400,000	14,700	21
Feb. 7.....	16.5	6,400,000	14,000	7
Feb. 8 ¹				
Feb. 11.....	9.8	4,100,000	21,000	7
Feb. 13.....	5.6	3,200,000	25,400	27
Feb. 14.....	4.3	2,400,000	39,400	28
Feb. 15.....	3.9	2,000,000	40,400	95
Feb. 17 ²	4.5	1,900,000	24,500	78
Feb. 18.....	5.8	1,900,000	15,700	108
Feb. 19.....	6.8	2,900,000	13,000	69
Feb. 21.....	8.1	5,000,000	16,000	73
Feb. 24.....	9.3	4,500,000	14,900	37
Feb. 26.....	11.2	4,600,000	14,700	21
Mar. 1.....	13.4	4,700,000	12,000	15
Mar. 5.....	13.7	5,200,000	12,800	4
Mar. 8.....	13.4	5,000,000	10,500	0
Mar. 12.....	14.5	5,000,000	10,700	3
Mar. 15.....	12.5	5,500,000	13,000	5
Mar. 19.....	13.6	5,700,000	15,300	2
Mar. 22.....	14.6	5,500,000	11,000	3
Mar. 26.....	15.2	5,700,000	11,400	3
Mar. 29.....	15.6	6,200,000	13,200	4

¹ Began daily supplement of 15 grams of raw onions per kilo of body weight.

² Onion supplement discontinued.

Dog 195.—On stock diet No. 326 from December 31, 1929, to February 7, 1930.
 February 4, 1930: Weighs 6.5 kilos.
 February 7: Begins daily supplement of 130 grams of raw onions.
 March 25: Weighs 6.9 kilos.

TABLE 9.—*Blood examinations of dog 195*

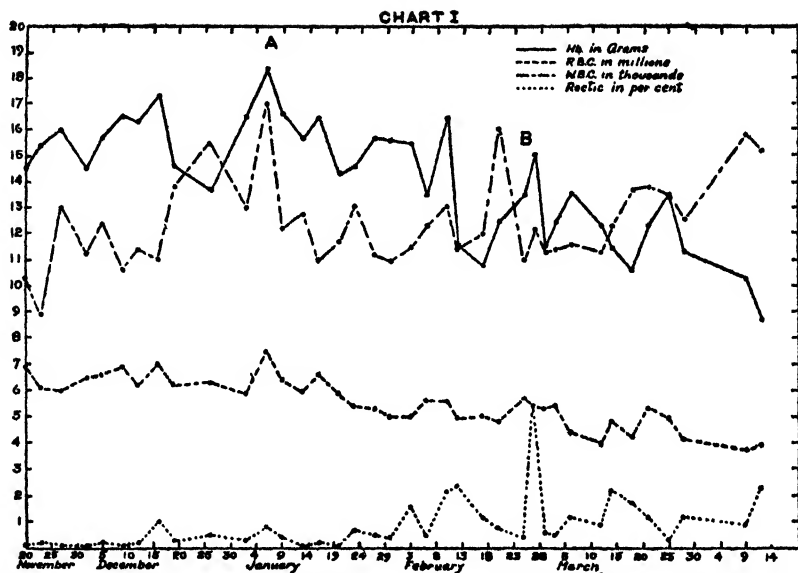
Date	Hemoglobin, grams per 100 cubic centimeter	Red cell count	White cell count	Reticulated red cells per thousand
1930				
Jan. 25.....	16.4	6,800,000	7,800	3
Jan. 29.....	14.5	6,400,000	8,800	26
Feb. 1.....	16.4	7,200,000	8,600	7
Feb. 5.....	16.1	6,900,000	8,600	1
Feb. 7 ¹				
Feb. 8.....	15.5	6,400,000	9,300	5
Feb. 12.....	6.4	3,500,000	12,700	34
Feb. 14.....	4.7	2,500,000	18,200	60
Feb. 15.....	4.0	2,100,000	16,600	86
Feb. 17.....	4.8	2,300,000	13,600	61
Feb. 18.....	5.3	1,900,000	10,000	74
Feb. 19.....	6.2	2,500,000	10,400	35
Feb. 21.....	6.3	3,000,000	11,500	107
Feb. 24.....	7.2	3,700,000	8,800	53
Feb. 26.....	8.6	5,000,000	15,000	25
Mar. 1.....	9.2	3,500,000	11,000	50
Mar. 5.....	9.1	3,500,000	7,000	66
Mar. 8.....	8.8	4,100,000	10,100	38
Mar. 12.....	9.5	4,000,000	8,400	60
Mar. 15.....	8.5	4,000,000	9,200	28
Mar. 19.....	8.9	4,000,000	7,300	49
Mar. 22.....	9.5	4,200,000	9,300	58

¹ Began daily supplement of 20 grams of raw onions per kilo of body weight.

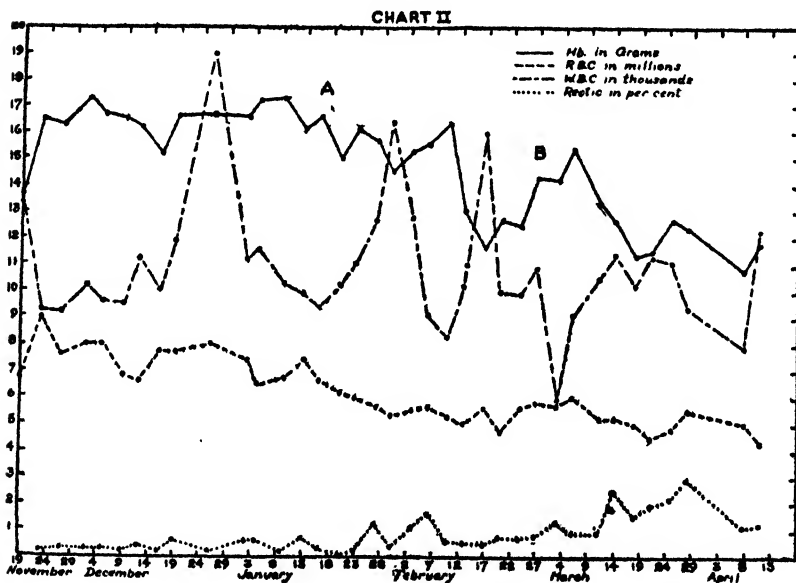
Differential leucocyte counts were made on the five animals that presented the marked increase in white cells simultaneously with the severe anemia. A differential count was made previous to the addition of the onions to the diet, at the height of the leucocytosis, and immediately following the leucocytosis. The results are given in Table 10.

TABLE 10.—*Differential leucocyte count*

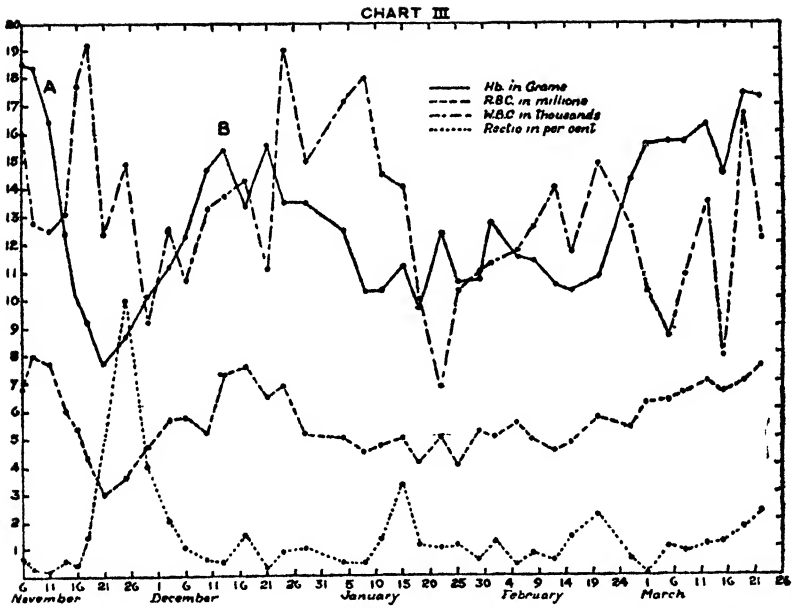
Dog No.	Date	Total number of white cells	Pmn. neutrophilic leucocytes		Lymphocytes		Monocytes		Pmn. eosinophilic leucocytes	
			Per cent	Number per cubic millimeter	Per cent	Number per cubic millimeter	Per cent	Number per cubic millimeter	Per cent	Number per cubic millimeter
129.....	Dec. 9, 1929	7,000	70	4,900	19	1,330	6	420	5	850
	Dec. 26, 1929	21,000	63	13,797	21	4,599	11	2,400	5	1,095
	Jan. 6, 1930	6,200	61	3,782	26	1,612	9	558	4	248
167.....	Nov. 8, 1929	9,209	64	5,889	20	1,840	7	644	9	828
	Nov. 16, 1929	23,500	77	17,325	13	2,925	7	1,575	3	675
	Nov. 21, 1929	7,700	51	3,927	28	2,926	6	462	5	385
191.....	Nov. 8, 1929	12,800	51	6,528	23	2,944	5	640	21	2,688
	Nov. 18, 1929	19,200	70	13,440	16	3,072	2	384	12	2,304
	Nov. 29, 1929	9,200	49	4,508	17	1,564	5	460	20	2,668
194.....	Feb. 7, 1930	14,000	71	9,940	24	3,360	4	560	1	140
	Feb. 15, 1930	40,400	72	29,088	24	9,696	2	808	2	808
	Feb. 19, 1930	13,000	42	5,460	41	5,330	9	1,170	8	1,040
195.....	Feb. 5, 1930	8,600	70	6,020	21	1,806	7	602	2	172
	Feb. 14, 1930	18,200	70	12,740	22	4,004	6	1,092	2	364
	Feb. 24, 1930	8,800	63	5,544	28	2,464	5	440	4	352



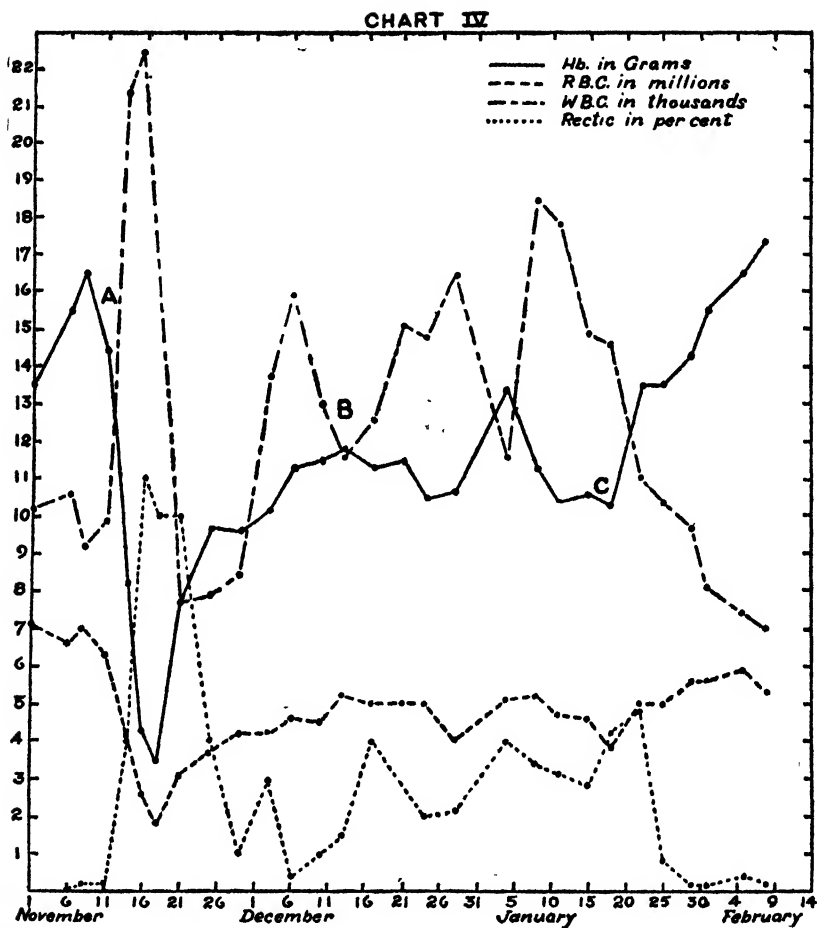
Doe 136.—Beginning at "A," 6 grams of cooked onions per kilo of body weight were mixed into the diet daily. At "B" the amount of onions was increased to 16 grams per kilo of body weight per day



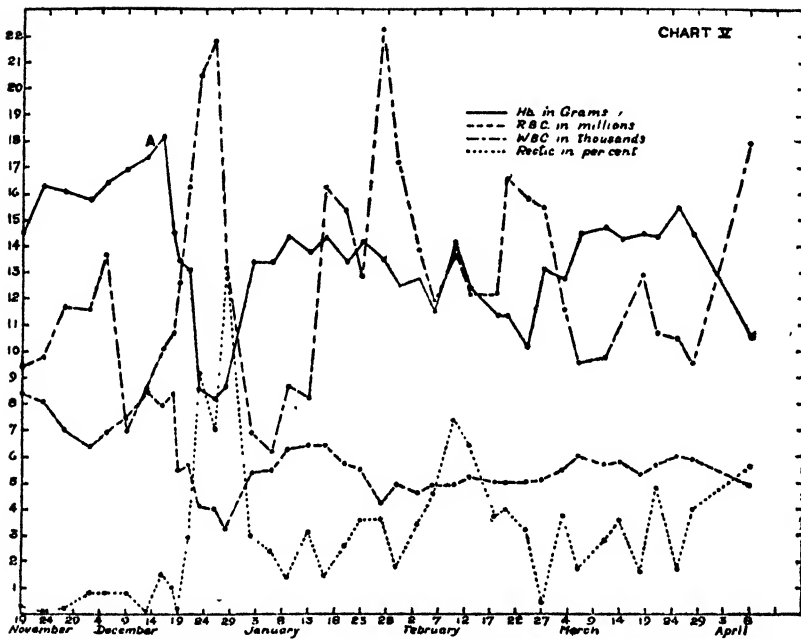
Doe 110.—Beginning at "A," 10 grams of cooked onions per kilo of body weight were mixed into the diet daily. At "B" the amount of onions was increased to 21 grams per kilo of body weight per day



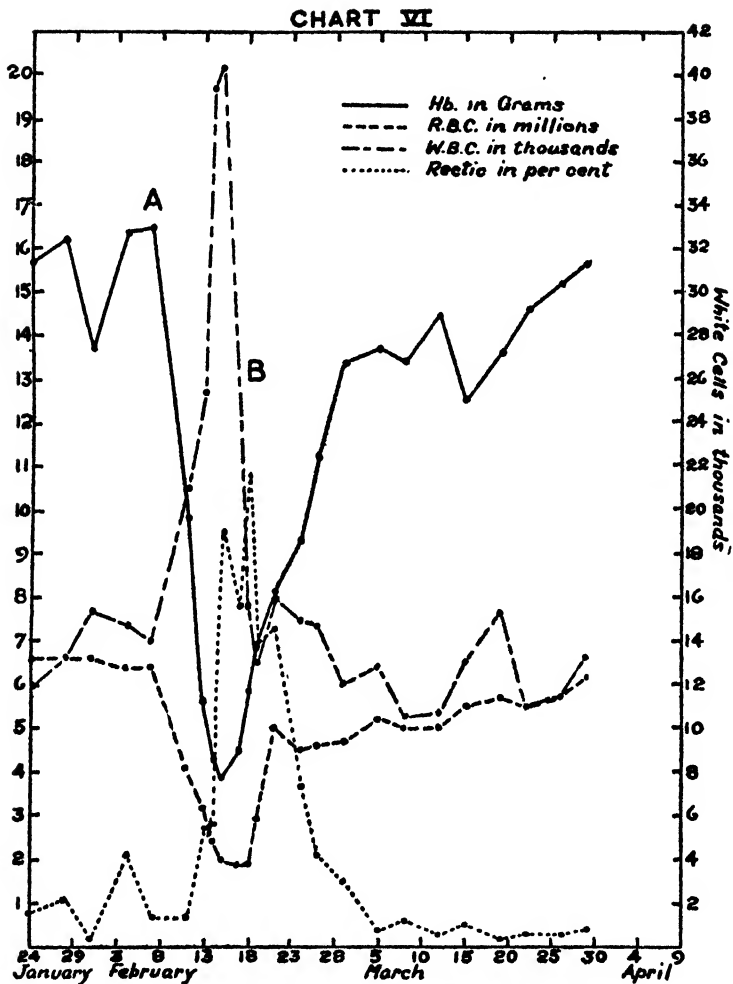
Dog 191.—Beginning at "A," 15 grams of cooked onions per kilo of body weight were mixed into the diet daily. At "B" the amount of onions was increased to 23 grams per kilo of body weight per day



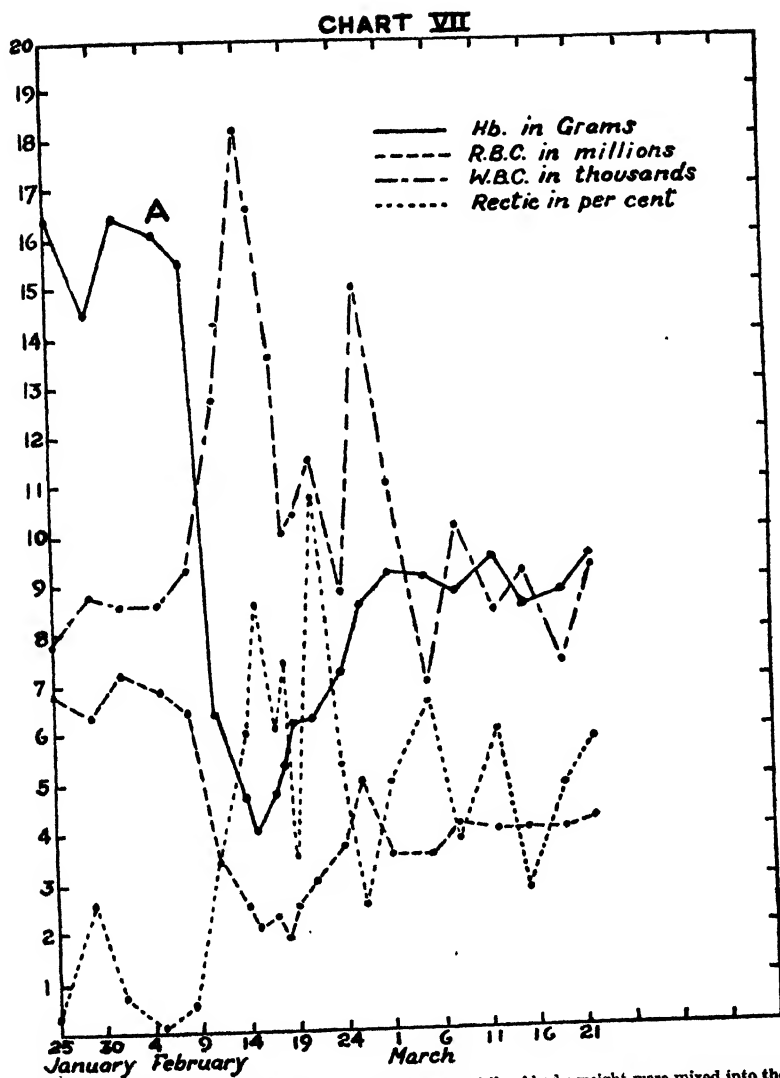
Dog 167.—Beginning at "A," 22 grams of cooked onions per kilo of body weight were mixed into the diet daily. At "B" the amount of onions was increased to 34 grams per kilo of body weight per day. At "C" the onion supplement was discontinued



DOG 129.—Beginning at "A," 27 grams of cooked onions per kilo of body weight were mixed into the diet daily



Dog 194.—Beginning at "A," 15 grams of raw onions per kilo of body weight were mixed into the diet daily. At "B" the onion supplement was discontinued



Dog 195.—Beginning at "A," 20 grams of raw onions per kilo of body weight were mixed into the diet daily

SUMMARY

Five dogs (Nos. 136, 110, 191, 167, and 129) were given daily supplements of cooked onions, in addition to the stock diet, in amounts of approximately 5, 10, 15, 20, and 25 grams per kilo of body weight. Two dogs (Nos. 194 and 195) were given daily supplements of raw onions in amounts of 15 and 20 grams per kilo of body weight, respectively.

In the dogs that received quantities of 5 and 10 grams of onions per kilo of body weight (Charts 1 and 2) there was a slight and gradual reduction in the number of red cells and in the amount of hemoglobin, which became more marked when the quantity of onions was increased. In the dogs receiving 15, 20, and 25 grams of cooked onions and 15 and 20 grams of raw onions per kilo of body weight, there was a sudden and marked decrease in the number of red cells and in the amount of hemoglobin, with a considerable increase in the number of leucocytes and reticulated red cells (Charts 3, 4, 5, 6, 7). This decrease in red cells and hemoglobin reached its maximum in from 7 to 12 days. There was then a rapid but slight increase, followed by a slow and gradual return toward the normal in spite of the continued administration of onions. In no case did the animal die in the course of the experiment. On the contrary, all of the animals remained in excellent condition. There was no loss of weight, nor of appetite, and the only evidence of abnormality seen on physical examination was an extreme paleness of the mucous membranes of the mouth, and an increased rate of respiration in some cases at the severest stage of the anemia.

In the case of dog 194 (Chart 6) the onion supplement was discontinued at the severest stage of the anemia and was followed by a more rapid and greater increase in red cells and hemoglobin than occurred in those animals in which the daily supplement of onions was continued.

In dog 167 (Chart 4) after 32 days on 22 grams of onions per kilo of body weight the daily supplement was increased to 34 grams per kilo of body weight without increasing the severity of the anemia. After 35 days on this quantity the onion supplement was discontinued and was followed by a return of the blood findings toward the normal.

In dog 191 (Chart 3) after 32 days on 15 grams of onions per kilo of body weight the daily supplement was increased to 23 grams per kilo of body weight with a resulting definite decrease in hemoglobin and red cells and an increase in leucocytes, followed by a slow return toward the normal in spite of the continued ingestion of the onions.

CONCLUSIONS

1. The evidence herein presented indicates that onions, either cooked or raw, when given in quantities of 15 grams, or over, per kilo of body weight per day, produce a severe anemia in dogs.

2. In amounts of 5 and 10 grams per kilo of body weight the cooked onions produced at the most a very slight anemia which became more severe on increasing the quantity of onions ingested to 15 and 20 grams per kilo of body weight, although there was no sharp and marked decrease in the red cells and hemoglobin such as occurred in the animals that had not previously received onions.

REFERENCES

(1) Goldberger and Wheeler: Experimental blacktongue of dogs and its relation to pellagra. Pub. Health Rep., vol. 43, No. 4 (Jan. 27, 1928), pp. 172-217. (Reprint No. 1205.)

(2) Goldberger, Wheeler, Lillie, and Rogers: A further study of experimental blacktongue with special reference to the blacktongue preventive in yeast. Pub. Health Rep., vol. 43, No. 12 (Mar. 23, 1928), pp. 657-694. (Reprint No. 1216.)

PUBLIC HEALTH ADMINISTRATION¹

By ALLAN J. McLAUGHLIN, *Surgeon, United States Public Health Service*

The difficulty in framing a concise and yet comprehensive definition of public health is clear evidence of the breadth and complexity of function involved in public health administration.

Two years ago the American Public Health Association submitted the question "What is public health?" to a number of outstanding leaders in public health administration. There were no short answers, but there was a remarkable uniformity in the ideas presented. Dr. E. L. Bishop, commissioner of the State Department of Public Health of Tennessee, gave this definition: "Public health practice is the organized effort of society to eliminate disease, elevate the standard of health and well-being, and increase the span of life. Its scope of activity deals not only with the causes and conditions of disease but with the causes and conditions of health as well." Another excellent definition by Prof. Ira V. Hiscock, of Yale, was as follows: "Public health is that which develops and conserves health and lengthens life by means of community activities organized to secure environmental sanitation, communicable-disease control, early discovery and preventive treatment of disease, and the education of the public in the principles of healthful living." These definitions are cited to emphasize the broad scope of public health and to show the

¹ Read before the Iowa State Public Health Conference, Des Moines, Iowa, Apr. 3, 1930.

complex machinery which must be devised to coordinate all the agencies which of necessity must participate in an effective and comprehensive program of public health.

It is obvious, therefore, that in an address on public health administration the time limitation will compel the speaker either to select some phase of public health work and discuss that phase in detail or confine himself to fundamentals in public health administration policy.

I deem it more profitable to consider the broad basic principles of public health administration rather than the details of procedure. This selection is made because the details of applied preventive medicine and hygiene are reasonably well known and to some extent standardized, while the policy which determines by whom these procedures are to be applied either does not exist or is not in operation.

The primary purpose of this address is to focus attention upon, and perhaps hasten in some degree, the solution of three problems, which, unsolved, present very great obstacles to public health administration:

(1) How can adequate medical, surgical, and preventive advice and treatment be made available to all citizens at a cost within their ability to pay?

(2) Can more adequate and effective teaching of applied preventive medicine and hygiene be included in the medical-school curriculum?

(3) Can more adequate and effective teaching of applied child hygiene be included in the curriculum of State teachers' colleges and normal schools?

The first is the greatest problem confronting the organized medical profession to-day, and is also one of the greatest sociologic problems for the Nation as a whole. It will be discussed under the heading of "The organized medical profession."

The second and third are problems of education and will be discussed under the heading of "Educational authorities."

First will be considered the four principal agencies which must be coordinated in public health administration and, second, some of the major problems which must be solved by these agencies individually or collectively. The four major factors in public health administration are as follows:

- (1) Official health departments.
- (2) Unofficial health agencies.
- (3) The organized medical profession.
- (4) Educational authorities.

Let us consider what rôle each should play and how the agencies are playing it.

OFFICIAL HEALTH DEPARTMENTS

Evolution.—The first quarantines at Ragusa, Marseille, and Venice in the fourteenth and fifteenth centuries were the result of the psychology of fear. They were efforts to prevent the introduction and spread of epidemic diseases. Our first boards of health were born of fear and hope. Fear of pestilence and hope that quarantine and isolation would prevent the spread of epidemic diseases. With this origin, it was natural that these boards of health should be given unusual police power and definite control of the individual for the good of the community. The early administrative health officers depended upon police power alone, and they were, in effect, policemen.

The epoch-making discoveries of Pasteur, Koch, and others from 1870 to 1890 gave a new impetus to the vigorous application of police power. The demonstration that disease was caused by fragile germs easily destroyed was responsible for the new vigor which marked the application of quarantine, isolation, and disinfection in the last decade of the last century. With the beginning of the twentieth century came the knowledge of the carrier. It was shown that even if doctors reported all cases under their care there would be as many more uncontrolled. Mild cases, atypical cases, and carriers who had no symptoms whatever could not be controlled by quarantine isolation or any other exhibition of police power. This new knowledge made health officers realize that control of the communicable diseases was possible only by the voluntary cooperation of the individual citizen and that this cooperation could be secured only by education in personal and family hygiene. Public health education became even more essential to the health officer as his field of work expanded to include noncommunicable disease and the improvement and conservation of health. Health officers gave up the idea that all public health work could be done by personnel on the pay roll of the health department. It was obvious that the education of individuals in personal hygiene and the securing of their voluntary help in preventing disease involved the participation of many agencies, official and unofficial, outside the health department.

In the first decade of this century unofficial voluntary agencies undertook public health activities of great importance and wide scope and boards of education developed plans and procedures in school hygiene. The responsibility for the health of the people was still squarely placed upon the shoulders of the health officer, yet a large part of the work necessary to discharge his obligation had to be done by personnel not under his direct control. The health officer, therefore, evolved from a policeman vainly striving to stamp out epidemic disease, into a constructive statesman, courteous and persuasive, who could weld together in one machine the forces engaged in public health activities.

The policy of a health officer to-day.—In discussing the simple fundamentals of public health administration, omitting details, it is possible to consider the health officer, Federal, State, and local, in general, because not only are the obligations and objectives similar, but the policy of administration in discharging these obligations and attaining these objectives is essentially the same for all health officers, whether their jurisdiction is over a county, a city, a State, or the United States as a whole. A health officer, therefore, regardless of his jurisdiction, must secure the active participation of the organized medical profession, the unofficial voluntary agencies, and the boards of education, and utilize them to carry out certain parts of his comprehensive program which would not otherwise be possible because of lack of funds and personnel in the health department.

The health officer should secure the active participation and support of the organized medical profession by means of a special advisory committee on public health appointed by the medical society. This committee would not conflict with an existing board of health. The official board of health, by law and ordinance, must pass upon all police measures and also upon questions of policy. An advisory public health committee would advise and approve measures to be carried out by the medical profession not depending upon law and ordinance. The health officer must be enough of a statesman to secure such advice from the medical society and to bring his board of health to approve of such measures.

The health officer can do much to encourage the local medical society to accept its collective obligation, to solve its greatest problem—scientific medical service, including preventive advice and treatment for all the people at a cost within their ability to pay. The furnishing of such facilities for treatment by the medical society will give early preventive and corrective treatment to the preschool child, a field in which at present the health officer is scarcely able to scratch the surface.

No health department now has, nor can it hope to have, sufficient funds to finance all health work. Voluntary health agencies simply add to the total health department budget large sums for public health work, which they are now doing, or which should be developed. It is the duty of the health officer to have a complete comprehensive plan for all health activity. He should include these voluntary health agencies in that plan, allotting to them work which he is unable to do and which they are ready and willing to do. It is the custom, where the best utilization of the voluntary agencies is secured, to have a committee of voluntary health agencies, with representatives of every agency engaged in any public health activity.

The health officer will find that in the promotion of the health of school children a considerable part of his work will be done for him

by the board of education. The amount of work done by boards of education in this field varies in the cities. In a survey of 98 largest cities of the United States, 23 had organized the work under the health department and 57 under the department of education, and 18 had some joint arrangement between the health and education departments. There is a third factor in cities, viz, the parochial schools. This complex situation calls for the qualities of statesmanship which a good health officer should possess. He must accept what is being done and dovetail it in with his own child hygiene program. The main objective is to get the work done, and the matter of who shall do it is of lesser importance.

THE ORGANIZED MEDICAL PROFESSION

The part that the organized medical profession should play in public health is scarcely second to that of health departments themselves. In the evolution of public health doctors have played the chief rôle, but always individually. These early pioneers in public health administration were doctors; but an artificial division between preventive and curative medicine separated them from their brothers. This gulf was widened by the activity, based on police power regarding compulsory reporting, quarantine, and disinfection, and on the restriction of health work to the communicable diseases. With the expansion of public health functions to prevention of all diseases and to the promotion and conservation of health, the artificial division was bound to disappear. To-day all practitioners of medicine must practice preventive medicine.

The county medical society should be willing to appoint an advisory public health committee to advise the health officer on all questions of preventive medicine, and especially those phases of preventive medicine which involve early diagnosis or treatment.

The layman has been educated and now knows that diseases can be prevented or their hazard minimized by early diagnosis and treatment. The average citizen, for financial reasons, does not consult a doctor until he is definitely ill, and very often postpones calling the doctor until he is confined to bed. It is not the cost itself but the lack of definite knowledge of what that cost may be. More important still, in smaller cities and towns there is an absolute lack of clinics and out-patient departments. Many careless statements and inaccurate generalizations are made in regard to the cost of medical care. In the larger cities clinics and out-patient departments have developed independent of the medical society as a unit. For this reason the trite statement is often heard that the poor in large cities and the rich anywhere can secure the best medical service, but that for the intervening classes such treatment is not available.

The cost of the best medical care, where available, is worth what is paid for it. The cost has not increased in greater proportion than the costs of other service; but medical and surgical diagnostic and treatment facilities have been elaborated to include many new procedures, worth their cost, which were not included years ago. The greatest problem is not the cost but the absence of facilities for modern diagnosis and treatment at a definite known cost.

It is the collective obligation of the organized medical profession to solve this great problem. The American Medical Association has recognized this collective obligation, and every county medical society is urged to accept its problem and discharge its obligation. In the large cities the problem is complicated by group clinics, industrial clinics, and other installations outside the control of the medical society. In the smaller cities the situation is less complex and solution less difficult. Difficult or easy, the solution should come from the medical society. The demand for these services is based upon sound public opinion and must be satisfied by some agency. Protracted delay in grappling with this problem, seizing the initiative, and establishing such facilities can result only in makeshift clinics established by institutions and agencies independent of the organized profession or by quacks and charlatans.

UNOFFICIAL HEALTH AGENCIES

The origin of unofficial voluntary health agencies and their development into great public health machines was due to two things: First, the restriction of official health work to an attempt to control communicable disease by police power alone, and, second, the demand of public opinion based upon new medical knowledge that new methods be tried, methods independent of police power and based largely upon education. The impatient desire to expand public health work to include all diseases and to attack the communicable diseases directly by education of the individual citizens was a response to the seeming unwillingness of official health departments to expand and utilize other methods than those based on police power. The health officers were not unwilling to expand, but it was impossible to secure funds from official sources for untried methods, the efficiency of which had yet to be demonstrated.

The greatest contribution of the unofficial voluntary agencies was the demonstration in the first decade of this century that educational methods were effective in the prevention of disease and the reduction of death rates and that such methods were legitimate weapons for the use of official health departments. Thus, as pioneers, voluntary health agencies have been of great help to official health departments in demonstrating the value of new procedures and in financing these demonstrations when funds for such purposes could not be secured by the official health department.

These two separate movements advancing side by side, the expansion of official health departments and the development of voluntary health agencies were bound to conflict, and at first there was misunderstanding, distrust, and antagonism. In the second decade much of this conflict had disappeared; and in the last decade the policy of unofficial health agencies in their relation to health departments is so clearly defined, understood, and accepted that there is to-day no reason for conflict. This clarification of policy was brought about by conferences of health officials with the heads of the great national unofficial health agencies. It is now clearly understood that an unofficial health agency is an auxiliary of the duly constituted health authorities, with freedom of action in untilled fields, and the obligation to turn over to the health department any legitimate public health activity whenever the health department can secure the funds to carry on the work. The voluntary health agency has another obligation; it is that when the health officer has a comprehensive program of public health activity it shall accept and agree to carry out such parts of that program as are within its power. And so to-day the proper utilization of the voluntary public health agencies depends upon the health officer himself. They increase enormously the total budget for public health far beyond the amount which the health officer can secure by official appropriations.

EDUCATIONAL AUTHORITIES

I desire to stress three activities having a direct bearing on public health:

- (1) Medical colleges.
- (2) State teachers colleges or normal schools.
- (3) Public schools.

Medical colleges.—Medical colleges have one tremendously important duty and function in relation to public health administration. It is the establishment of an adequate and more effective system of teaching preventive medicine and hygiene to the undergraduate medical students. The present practice varies in different colleges. Harvard has introduced preventive medicine into nearly every subject taught. The Harvard faculty has recently published a book showing how the preventive idea is stressed by each professor. Most schools have either a professor of preventive medicine or some one delegated to give lectures on this subject. In regard to adequacy and effectiveness, the major defect is a lack of practical demonstration. Teaching consists of didactic lectures, the material for which is found in any textbook on hygiene. What is needed is a close affiliation with a health department where the student can see the preventive medicine in actual practice. The student will remember much from actual demonstrations, but lectures alone often are ideal

soporifics in view of the fact that they produce sleep and have little after effect.

The desirability and need for this more adequate teaching of preventive medicine is obvious, for many reasons. It is essential in his own interest to adjust the student to the change of accent in the practice of medicine from curative to preventive. But there are two very definite reasons why the public health administrator desires this improvement in teaching:

(1) There will be graduated to enter practice a body of young doctors who will understand the objectives and efforts of the health officer and will therefore be sympathetic and helpful.

(2) Health officers at present are recruited from the practicing medical profession by political appointment. Their only knowledge of preventive medicine upon their first appointment is the instruction they have received in medical college. This has either been entirely neglected or consisted of a few lectures with no actual demonstration of public health work. This man has to learn something entirely new, and in the process will make many costly mistakes.

Some years ago it was hoped that postgraduate schools of public health would cover the need of trained health officers. This dream has not been realized. Our new appointees are not postgraduates in public health; they are ordinary practicing physicians, and appointees will continue to be such under our political system of government. Their training must come from actual experience in a health department, and this is greatly facilitated by having a foundation acquired by an adequate undergraduate course in preventive medicine.

State teachers colleges.—State teachers colleges and normal schools have a wonderful opportunity for real service by more adequately teaching child hygiene to teachers. The lack of training in the practical application of child hygiene methods is a real handicap to public health work in the schools. The need is most apparent in teachers of the first to the sixth grades and in the schools of the small city or county. In these situations it is not uncommon for one public health nurse to be carrying an overload of 8,000 pupils. If the teachers are trained they understand and are helpful, and in spite of the overload a creditable result is often obtained. The teacher is a very intelligent possibility in public health. She teaches hygiene and health habits and has observation of the children through the entire school day. Her training in hygiene is, therefore, one of the vital essentials in the health of the school child. Presidents of teachers' colleges have made very creditable efforts in many States to give good courses in health education. They have good textbooks and excellent instruction of a didactic type. With one or two exceptions, the same defect occurs which was charged to the teaching of preventive medicine in medical colleges, viz, too little practical demonstration of applied child

hygiene. To correct this defect it is necessary to have a doctor and nurse trained in child hygiene on the faculty, and to have an arrangement with the city or town in which the college is located by which the city schools are used by the doctor and nurse to demonstrate to the students, in groups, the practical work of child hygiene.

Local boards of education.—These boards have a very real interest and duty in regard to the promotion of health in the school child. Health is so vitally necessary to success in school that it has been for years the concern of school authorities. So much of the results in health promotion and conservation depends upon teaching of hygiene and health habits that naturally the teaching of hygiene was incorporated in the school curriculum. Enthusiastic administrators in school work in some cities have built up practically complete health departments for the school age group, restricting the health department activity to a control of contagious diseases.

It is immaterial how far the school authorities went and these apparent invasions can not be called a calamity. It usually happened that the board of education had the funds which the health department lacked.

It is incumbent upon boards of education to remember that there is an official health department charged with the prevention of disease and the promotion of health of all age groups, and they should be willing to form a close partnership with the health department to insure that the maximum of result for the health promotion and conservation of the school child is being attained by their joint efforts.

The business of departments of education is teaching, and this legitimately includes the promotion of health by the teaching of hygiene to its teachers and pupils. The application of our medical knowledge in child hygiene to prevent disease, detect and correct defects, and to promote and conserve health in the school child is the duty of the health officer, and his responsibility therefor is the same for the school child as for all the other age groups in life's span.

The fact that promotion and conservation of health has been developed and is practised in nearly all schools relieves the health department of the expense of such education in one age group of the population, and in many ways the most important of all age groups.

There can never be too much teaching of hygiene any more than there can be too much popular public health education. Health departments can never expect, nor will they ever receive, sufficient funds for all the public health education necessary. Health departments should welcome, therefore, as a reinforcement of their own program, any public health education work on sound lines by educational authorities or by unofficial or voluntary agencies.

In conclusion it is desired to emphasize the importance of the major problem confronting the organized medical profession to-day. There

was no intention in writing this paper to discuss the complex question of the cost of medical care, but rather the need of establishing facilities for such care where they do not exist.

It is less a question of the cost of medical care and more a question of lack of facilities necessary to good medical care. Good medical care is worth all that is paid for it. The cost of modern medical care has not increased in proportion to other services or costs of living when one considers that up to date medical care includes many procedures in diagnosis and treatment which were not developed 30 years ago. No blanket rules can be formulated for solving this great problem which would apply to all the States or even to all the communities within a single State. The problem is more complex in cities, especially large cities where pay clinics, group diagnosis, treatment of industrial groups, and other steps in the socialization of medicine have already been taken. These steps may not be ideal nor even desirable, yet the installations exist and must be utilized in any general scheme devised by the medical society. In smaller cities, towns, and counties the problem is simpler, as these facilities either do not exist or are rudimentary. The county medical society can organize clinics, fix the scale of pay, and regulate the eligibility for treatment according to the income of the individual or head of a family in a manner satisfactory to the society and to its individual members.

The installation of pay clinics by the medical society, or with the seal of its approval, gives the individual citizen valuable aid in avoiding the so-called clinic of the quack and charlatan.

The pay clinic either with a fixed rate or a sliding scale is a response to the demand of public opinion. The organized medical profession has been reluctant to take any steps to respond to the demand. Such clinics have been established by individual or groups of doctors, in connection with hospitals or medical colleges, or by endowments or foundations. Unfortunately, this insistent public demand has been capitalized by quacks and fakers who often establish clinics with elaborate and very impressive equipment.

The development of facilities for early diagnosis and early treatment by the organized medical profession at a known cost is frankly socialization of the practice of medicine. Such socialization is inevitable. It rests with the profession whether it shall seize the initiative and satisfy this demand or stand passively by and be compelled to submit to the process while it is carried out by outsiders.

State medicine may not come as a result of inactivity of the organized profession, though it is always a menace; but a gradual evolution—a haphazard growth in which the organized profession is inactive and inarticulate will produce a chaotic condition, which may be even worse than State medicine.

CURRENT PREVALENCE OF COMMUNICABLE DISEASES IN THE UNITED STATES ¹

March 30–April 26, 1930

The prevalence of certain important communicable diseases as indicated by weekly telegraphic reports from State health departments ² to the Public Health Service is summarized below. This summary is prepared from the data published weekly in the **PUBLIC HEALTH REPORTS** under the section entitled "Prevalence of Disease."

Meningococcus meningitis.—The incidence of meningococcus meningitis was still high in relation to the norm, but has recently declined somewhat, particularly during the latter half of April. The reported cases numbered 1,011, as compared with 1,172 for the same period of last year. During the corresponding periods of 1928, 1927, and 1926 the reported cases numbered only 517, 257, and 190, respectively.

Smallpox.—Unlike diphtheria and typhoid fever, which are drifting steadily to lower levels, smallpox is apparently becoming more and more prevalent. During the 4-week period of this summary, 5,208 cases were reported, compared with 3,240 for the corresponding period of last year, an increase of 61 per cent.

The geographic distribution is strikingly uneven. While more than half of the Atlantic States north of Virginia have reported no cases since January 1 of this year, the States in the West and in the upper Mississippi River Basin show considerable numbers of cases. Table 1 shows that the reported rates in the latter regions are approximately sixty times as high as those in the upper Atlantic Coast. In some individual States the rates are considerably higher than the regional averages.

In the North Central and the Pacific States the numbers of reported cases are appreciably higher for the first 17 weeks of 1930 than for the same period of either of the preceding years. In the other regions there is little difference between the numbers of cases reported in 1930 and the numbers reported for the same periods of the two preceding years.

TABLE 1.—*Smallpox reported attack rates, by regions and States, during the 17-week period December 29, 1929, to April 26, 1930, with comparative data for preceding years*

Division and State	Reported cases			Case rate per 100,000 population		
	1928	1929	1930	1928	1929	1930
New England and Middle Atlantic.....	362	208	245	1.1	0.6	0.7
Maine.....	0	72	0	.....	9.1	.....
Vermont.....	0	66	66	.....	18.8	18.8
Massachusetts.....	3	8	0	.1	.2	.....
Rhode Island.....	0	0	0	.....	.....	.....
Connecticut.....	136	29	0	8.2	1.7	.....
New York.....	134	25	147	1.2	.2	1.3
New Jersey.....	76	1	0	2.0	.03	.....
Pennsylvania.....	16	7	32	.2	.1	.3

¹ From the Office of Statistical Investigations, United States Public Health Service.

² The numbers of States reporting for the various diseases are as follows: Typhoid fever, 41; poliomyelitis, 43; meningococcus meningitis, 42; smallpox, 42; measles, 38; diphtheria, 42; scarlet fever, 41; influenza, 31.

TABLE 1.—*Smallpox reported attack rates, by regions and States, during the 17-week period December 29, 1929, to April 26, 1930, with comparative data for preceding years—Continued*

Division and State	Reported cases			Case rate per 100,000 population		
	1928	1929	1930	1928	1929	1930
South Atlantic.....	2,817	714	781	19.8	5.0	5.5
Delaware.....	1	0	0	.4	—	—
Maryland.....	11	8	0	.7	.5	—
District of Columbia.....	17	0	0	3.1	—	—
Virginia.....	0	12	9	.5	.4	—
West Virginia.....	874	263	357	50.7	15.3	20.7
North Carolina.....	1,793	359	402	61.0	12.2	13.7
Georgia.....	15	55	0	.5	1.7	—
Florida.....	106	17	13	7.5	1.2	.9
North Central.....	8,363	7,541	13,767	29.7	24.0	43.9
Indiana.....	2,166	1,054	3,167	68.2	33.2	99.7
Illinois.....	727	1,851	2,311	9.8	25.0	31.3
Michigan.....	577	758	1,257	12.6	16.5	27.4
Wisconsin.....	407	163	510	13.8	5.5	17.6
Minnesota.....	29	42	109	1.1	1.5	4.0
Iowa.....	1,128	652	1,702	46.5	26.9	70.1
Missouri.....	892	604	1,055	25.3	17.1	30.0
North Dakota.....	42	71	405	6.6	11.1	63.2
South Dakota.....	180	537	812	25.6	76.3	115.3
Nebraska.....	733	907	1,054	52.1	64.4	75.1
Kansas.....	1,482	902	1,372	80.8	49.2	74.8
South Central.....	3,758	1,533	2,388	28.5	11.6	18.1
Tennessee.....	420	46	253	17.2	1.8	10.1
Alabama.....	141	143	123	5.5	5.6	4.8
Mississippi.....	101	17	95	5.6	1.0	5.3
Arkansas.....	169	110	281	8.7	5.7	14.5
Louisiana.....	359	102	104	18.4	5.2	5.3
Oklahoma.....	2,559	1,115	1,532	105.5	46.0	63.2
Mountain.....	1,434	1,325	1,462	37.4	34.6	38.1
Montana.....	391	236	204	71.2	43.0	37.2
Idaho.....	92	346	168	16.9	63.4	30.8
Wyoming.....	95	81	143	38.3	32.8	57.9
Colorado.....	223	383	387	20.5	35.1	35.5
New Mexico.....	67	19	80	14.4	4.8	20.2
Arizona.....	310	172	465	65.4	36.3	98.1
Utah.....	266	88	15	50.1	16.6	2.8
Pacific.....	2,196	2,501	3,277	31.2	35.5	46.5
Washington.....	829	850	1,420	52.1	53.6	89.5
Oregon.....	832	982	398	92.2	75.6	44.1
California.....	534	969	1,459	11.8	21.3	32.0

Measles.—The incidence of measles during recent weeks has risen more sharply than is usual for this season of the year. There were reported 67,530 cases during the 4-week period considered, as compared with 50,637 during the preceding four weeks and with 47,863 during the corresponding period of last year. The rise seems rather general in all sections of the country.

Influenza.—The influenza incidence continued at a low level, with 2,545 cases reported, as compared with 2,571 for the corresponding period of last year.

Typhoid fever.—Typhoid fever continued at about the lowest incidence on record in relation to the seasonal expectancy. There were 611 cases reported, as compared with 731 for the corresponding period of last year.

Poliomyelitis.—The incidence of poliomyelitis continued below the average for the season. Fifty-six cases were reported, as compared with 62 for the same period of last year. Some seasonal rise may be expected within the next month or two.

Scarlet fever.—Scarlet fever was slightly below normal, with 17,365 cases reported. The seasonal decline is well under way.

Diphtheria.—The reports for recent weeks continue to keep 1930 as the year of the lowest diphtheria incidence on record. The reported number of cases for the 4-week period of this report numbered 4,203, as compared with 5,203 for the corresponding period of last year.

Mortality, all causes.—The mean death rate for the period, as reported in the Weekly Health Index of the Census Bureau, was 14.1 per thousand population (annual basis), as compared with 13.3 for the corresponding period of last year.

SICKNESS AMONG INDUSTRIAL EMPLOYEES DURING THE LAST THREE MONTHS OF 1929¹

By DEAN K. BRUNDAGE, *Associate Statistician, United States Public Health Service*

It will be recalled that an influenza epidemic was in progress during the final month of 1928, affecting adversely the rate of sickness in the fourth quarter of that year. For this reason the disability rate for the last three months of 1929 among a group of about 110,000 industrial employees makes a favorable comparison with the rate for the corresponding period of the preceding year. The frequency of disability from sickness lasting more than one week was 27 per cent lower in the fourth quarter of 1929 than in the same quarter of 1928. The respiratory group of diseases shows the greatest decrease, of course; the rate was little more than one-half that experienced in the last three months of 1928. Influenza and grippe decreased 64 per cent, and pneumonia 26 per cent from the incidence experienced during the fourth quarter of 1928. In the last three months of 1929, however, bronchitis and diseases of the pharynx and tonsils increased 13 and 9 per cent, respectively, but the incidence of tuberculosis declined 20 per cent, and the rate for respiratory diseases other than those mentioned above dropped 5 per cent from the rate of the fourth quarter of 1928.

A decrease of 4 per cent is indicated for the nonrespiratory diseases as a whole. Within this group, diseases of the stomach, diarrhea and enteritis, and diseases of the skin showed the largest declines (14 per

¹ From the Office of Industrial Hygiene and Sanitation in cooperation with the Office of Statistical Investigations, United States Public Health Service.

cent in both instances) from the rates during the corresponding period of 1928. An increase of 14 per cent is indicated for the epidemic and endemic group of diseases (title numbers 1-10 and 12-25 in the International List of the Causes of Death, 3d revision, 1920), but little significance should be attached to this increase on account of the small number of cases involved. These generally favorable results both in the respiratory and the nonrespiratory disease groups mark the final quarter of 1929 as a period in which the rate of disabling sickness among industrial workers appears to have been comparatively low.

TABLE 1.—Frequency of disabilities lasting eight consecutive days or longer in the final quarter of 1929, compared with the last quarter of 1928, among male employees of 13 industrial establishments which reported their cases to the United States Public Health Service during both years

Diseases causing disability (numbers in parentheses are disease title numbers from the International List of the Causes of Death, third revision, 1920)	Annual number of disabilities per 1,000 men in last quarter of—		Per cent increase or decrease in rate in 1929	Number of disabilities in last quarter of—	
	1929	1928		1929	1928
Sickness and nonindustrial injuries.....	98.0	129.1	-24	2,717	3,410
Nonindustrial injuries.....	12.0	11.4	+5	333	301
Sickness.....	86.0	117.7	-27	2,384	3,109
Respiratory diseases.....	38.3	67.8	-44	1,063	1,791
Influenza and grippe (11).....	16.3	45.6	-64	451	1,205
Bronchitis (99).....	7.0	6.2	+13	195	164
Pneumonia—all forms (100, 101).....	2.8	3.8	-26	78	101
Diseases of the pharynx and tonsils (109).....	6.1	5.6	+9	170	148
Tuberculosis (31).....	.8	1.0	-20	21	27
Other respiratory diseases (97, 98, 102-107).....	5.3	5.6	-5	148	146
Nonrespiratory diseases.....	47.7	49.9	-4	1,321	1,318
Diseases of the stomach, diarrhea, and enteritis (111, 112, 114).....	5.4	6.3	-14	148	167
Other diseases of the digestive system (108, 110, 115-127).....	7.2	7.1	+1	200	187
Diseases of the circulatory and genito-urinary systems and annexa (87-96, 128-136).....	7.8	8.1	-4	217	213
Diseases of the nervous system (70-84).....	5.4	5.4	0	149	143
Diseases of the skin (151-154).....	4.2	4.9	-14	116	129
Epidemic and endemic diseases, except influenza (1-10, 12-25).....	1.6	1.4	+11	45	37
Rheumatism—acute and chronic (51, 52).....	5.0	5.2	-4	139	138
Lumbago and other diseases of the organs of locomotion (158).....	4.8	5.1	-6	133	134
Ill-defined and unknown causes (205).....	2.1	2.1	0	58	56
All other diseases (26-30, 32-37, 41-50, 53-69, 85, 86, 155-157, 159, 164).....	4.2	4.3	-2	116	114
Average number of males covered in the records.....				109,970	105,117

The data include only the more serious cases of illness and nonindustrial accidents, as those causing disability for one week or less are not reported. The sickness rates were computed from the reports of 13 large industrial establishments having a combined male working force of 109,970 (average number during the last three months of 1929). The sickness rates among female employees are not presented.

Only those establishments are included which reported in both years, so that as nearly the same population as is possible to obtain was under observation in the two periods. With but one exception, these reporting establishments are located in the region lying north of the Ohio and Potomac Rivers and east of the Mississippi.

It is quite possible that the recorded sickness presented above understates to some extent the real magnitude of the incidence rate of cases causing disability for more than one week, because a number of the reporting associations do not pay sick benefits for disability on account of the venereal diseases, for illness resulting from the violation of any civil law, for the results of willful or gross negligence, and for certain other causes; and some associations do not pay for chronic diseases contracted prior to the date of joining the organization, for disabilities caused by or growing out of specific physical defects, nor for illnesses not reported within specified time limits. Of more importance, perhaps, is the fact that the reports come from the larger companies having well-organized employment and medical departments which make a physical examination of applicants, so that a somewhat favorably selected group from a health standpoint may result. Workers in poor health who doubt their ability to pass the physical examinations may tend to drift into the smaller industrial establishments where the physical condition of the applicant is usually given less consideration. As offsetting factors a few cases of malingering may be included in the records, and the associations with the most liberal sick-benefit provisions may attract persons when their health begins to fail. On the whole, it seems that the statistics presented may tend more toward understatement than overstatement of the average frequency of disability which lasts longer than one week among industrial employees.

DEATH RATES IN A GROUP OF INSURED PERSONS

Rates for Principal Causes of Death for March, 1930

The accompanying table, taken from the Statistical Bulletin for April, 1930, issued by the Metropolitan Life Insurance Co., presents the mortality record of the industrial insurance department of the company for March, as compared with the preceding month and with figures for the corresponding month of last year. It also gives the cumulative rates for the period January to March for the years 1929 and 1930. Death rates are given for the principal causes of death. These rates are based on a strength of approximately 19,000,000 persons in the United States and Canada.

The bulletin states:

The health record for March, 1930, was better than for any previous March. This is indicated by the low death rate of 9.4 per 1,000 among the approximately 19,000,000 policyholders. The figure is well below the previous low point (9.8) established in the same month of last year. There was a slight drop in March from the February mortality rate of 9.6 per 1,000.

Except for measles, scarlet fever, cancer, and heart disease every disease listed in the table registered a decline in March as compared with the corresponding month of 1929. The record for violent deaths was not so favorable, as suicides, homicides, and automobile fatalities recorded increases.

Death rates (annual basis) per 100,000 for principal causes of death, March, 1930

[Industrial department, Metropolitan Life Insurance Co.]

Cause of death	Death rate per 100,000 lives exposed ¹				
	March, 1930	February, 1930	March, 1929	Cumulative January-March	
				1930	1929
Total, all causes	940.6	963.8	980.5	949.2	1,153.8
Typhoid fever	1.1	1.3	1.7	1.2	1.4
Measles	3.6	3.3	3.5	3.1	3.8
Scarlet fever	3.3	3.9	2.8	3.8	3.5
Whooping cough	4.2	5.5	5.1	4.8	7.3
Diphtheria	6.8	9.0	8.7	8.9	10.7
Influenza	25.3	27.3	53.1	27.4	122.3
Tuberculosis (all forms)	88.1	82.3	92.0	83.4	94.0
Tuberculosis of respiratory system	75.4	71.9	80.9	72.8	83.8
Cancer	74.2	73.1	72.3	74.8	76.4
Diabetes mellitus	19.6	20.2	20.6	20.8	23.8
Cerebral hemorrhage	62.9	68.2	² 57.3	63.0	² 65.2
Organic diseases of heart	159.5	169.0	154.2	163.2	179.6
Pneumonia (all forms)	119.0	117.2	128.7	114.2	164.6
Other respiratory diseases	14.0	11.8	20.3	13.2	16.9
Diarrhea and enteritis	11.1	11.1	12.8	11.5	13.7
Bright's disease (chronic nephritis)	70.7	71.0	72.0	70.7	79.3
Puerperal state	13.1	14.4	14.0	13.6	15.0
Suicides	9.8	7.5	8.5	8.8	8.4
Homicides	7.5	5.5	5.1	6.8	6.3
Other external causes (excluding suicides and homicides)	43.7	58.7	50.4	56.8	56.5
Traumatism by automobiles	13.9	16.4	13.3	17.1	15.1
All other causes	200.1	203.5	196.6	199.3	205.2

¹ All figures in this table include infants insured under 1 year of age and are subject to slight correction, as they are based on provisional estimates of lives exposed to risk.

² Rate not comparable with that for 1930.

DEATHS DURING WEEK ENDED MAY 10, 1930

Summary of information received by telegraph from industrial insurance companies for the week ended May 10, 1930, and corresponding week of 1929. (From the Weekly Health Index, May 14, 1930, issued by the Bureau of the Census, Department of Commerce)

	Week ended May 10, 1930	Corresponding week, 1929
Policies in force	75,798,638	74,121,111
Number of death claims	14,459	14,325
Death claims per 1,000 policies in force, annual rate	9.9	10.1

Deaths from all causes in certain large cities of the United States during the week ended May 10, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index, May 14, 1930, issued by the Bureau of the Census, Department of Commerce)

City	Week ended May 10, 1930		Annual death rate per 1,000, corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended May 10, 1930 ¹
	Total deaths	Death rate ¹		Week ended May 10, 1930	Corresponding week, 1929	
Total (64 cities).....	7,856	13.8	12.9	716	694	63
Akron.....	43			8	7	73
Albany ⁴	34	14.7	13.4	1	3	22
Atlanta.....	81	16.6	16.1	7	6	74
White.....	41			4	3	127
Colored.....	40	(⁵)	(⁵)	3	3	48
Baltimore ⁴	239	15.0	12.7	13	19	44
White.....	187			9	14	39
Colored.....	52	(⁵)	(⁵)	4	5	65
Birmingham.....	80	18.5	13.1	7	6	65
White.....	35			4	4	62
Colored.....	45	(⁵)	(⁵)	3	2	71
Boston.....	253	16.5	13.6	36	22	101
Bridgeport.....	28			1	2	17
Buffalo.....	160	15.0	13.0	18	19	80
Cambridge.....	31	12.8	10.4	1	2	19
Camden.....	39	15.0	13.1	7	5	617
Chicago ⁴	731	12.1	11.8	68	75	67
Cincinnati.....	154			12	7	71
Cleveland.....	190	10.1	10.2	25	16	75
Columbus.....	107	18.7	15.5	5	9	49
Dallas.....	64	15.3	10.1	8	2	
White.....	47			5	2	
Colored.....	17	(⁵)	(⁵)	3	0	
Dayton.....	44	12.4	12.4	5	4	74
Denver.....	69	12.2	15.2	9	4	94
Des Moines.....	40	13.7	11.7	3	4	52
Detroit.....	313	11.8	13.3	38	42	59
Duluth.....	16	7.1	9.4	1	1	27
El Paso.....	36	15.9	17.3	6	8	
Erie.....	30			4	3	85
Fall River ⁴	29	11.3	14.4	6	4	137
Flint.....	34	11.9	18.6	2	7	23
Fort Worth.....	43	13.1	14.1	4	3	
White.....	32			4	3	
Colored.....	11	(⁵)	(⁵)	0	0	
Grand Rapids.....	23	7.3	12.4	0	8	0
Houston.....	75			11	2	
White.....	41			6	2	
Colored.....	34	(⁵)	(⁵)	5	0	
Indianapolis.....	101	13.8	13.5	0	9	0
White.....	83			0	7	0
Colored.....	18	(⁵)	(⁵)	0	2	0
Jersey City.....	101	16.2	9.8	17	5	148
Kansas City, Kans.....	31	13.7	11.9	4	4	95
White.....	27			3	4	80
Colored.....	4	(⁵)	(⁵)	1	0	217
Kansas City, Mo.....	105	14.0	11.5	6	4	47
Knoxville.....	26	12.9	14.8	5	3	117
White.....	20			4	3	104
Colored.....	6	(⁵)	(⁵)	1	0	247
Los Angeles.....	253			21	20	64
Louisville.....	93	14.7	13.8	3	8	26
White.....	71			3	4	30
Colored.....	22	(⁵)	(⁵)	0	4	6
Lowell.....	29			3	2	71
Lynn.....	26	12.9	11.9	4	1	101
Memphis.....	100	27.4	20.8	6	6	71
White.....	43			3	3	55
Colored.....	57	(⁵)	(⁵)	3	3	101
Milwaukee.....	126	12.1	10.5	18	13	91
Minneapolis.....	107	12.2	10.0	4	8	26
Nashville.....	35	13.1	16.8	0	4	0
White.....	22			0	2	0
Colored.....	13	(⁵)	(⁵)	0	2	0

Footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended May 10, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929—Continued

City	Week ended May 10, 1930		Annual death rate per 1,000, corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended May 10, 1930 ¹
	Total deaths	Death rate ¹		Week ended May 10, 1930	Corresponding week, 1929	
New Bedford.....	23			1	5	26
New Haven.....	45	12.5	13.6	1	1	19
New Orleans.....	137	16.6	18.8	17	15	98
White.....	78			10	6	88
Colored.....	59	(²)	(²)	7	9	118
New York.....	1,714	14.9	13.1	165	148	69
Bronx Borough.....	209	11.4	11.2	11	14	26
Brooklyn Borough.....	582	13.1	11.6	72	62	77
Manhattan Borough.....	658	19.6	17.7	56	57	92
Queens Borough.....	214	13.1	9.6	18	15	62
Richmond Borough.....	51	17.6	14.5	149	0	59
Newark, N. J.....	122	13.4	10.9	11	10	58
Oakland.....	47	8.9	11.0	1	1	12
Oklahoma City.....	30			4	1	79
Omaha.....	63	14.7	13.8	4	8	45
Paterson.....	41	14.8	11.5	5	8	87
Philadelphia.....	544	13.7	12.4	58	36	80
Pittsburgh.....	184	14.2	13.0	28	19	103
Portland, Oreg.....	59			2	4	25
Providence.....	76	13.8	13.3	5	6	46
Richmond.....	53	14.2	18.0	5	2	74
White.....	36			5	0	112
Colored.....	17	(³)	(³)	0	2	0
Rochester.....	78	12.4	13.8	2	9	18
St. Louis.....	225	13.8	12.1	10	7	32
St. Paul.....	62			4	3	41
Salt Lake City ⁴	35	13.2	9.4	2	2	31
San Antonio.....	78	18.6	23.0	10	25	
San Diego.....	35			3	3	63
San Francisco.....	165	14.7	12.6	8	11	55
Schenectady.....	31	17.3	14.5	3	3	94
Seattle.....	58	7.9	12.9	2	2	20
Somerville.....	18	9.1	8.6	1	1	33
Spokane.....	35	16.7	13.9	1	2	26
Springfield, Mass.....	35	12.2	14.3	2	7	32
Syracuse.....	56	14.7	14.1	3	6	37
Tacoma.....	27	12.7	9.9	2	2	51
Toledo.....	87	14.5	11.8	4	5	37
Trenton.....	45	16.9	11.6	7	0	130
Utica.....	35	17.5	15.0	2	0	57
Washington, D. C.....	167	15.8	11.2	11	8	64
White.....	104			6	5	52
Colored.....	63	(⁵)	(⁵)	5	3	89
Waterbury.....	19			2	2	51
Wilmington, Del.....	32	13.0	13.0	3	3	68
Worcester.....	51	13.5	15.3	5	7	65
Yonkers.....	18	7.7	12.5	0	1	0
Youngstown.....	41	12.3	12.0	1	5	16

¹ Annual rate per 1,000 population.

² Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.

³ Data for 72 cities.

⁴ Deaths for week ended Friday.

⁵ In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 26; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended May 10, 1930, and May 11, 1929

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended May 10, 1930, and May 11, 1929

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended May 10, 1930	Week ended May 11, 1929	Week ended May 10, 1930	Week ended May 11, 1929	Week ended May 10, 1930	Week ended May 11, 1929	Week ended May 10, 1930	Week ended May 11, 1929
New England States:								
Maine.....	1	-----	2	7	101	83	0	0
New Hampshire.....	1	1	-----	-----	22	61	0	1
Vermont.....	1	-----	-----	-----	42	9	0	0
Massachusetts.....	48	78	2	8	1,678	744	5	3
Rhode Island.....	9	6	-----	-----	6	83	1	1
Connecticut.....	11	14	10	7	61	400	1	2
Middle Atlantic States:								
New York.....	119	358	120	118	2,398	1,324	16	24
New Jersey.....	91	136	14	5	1,310	288	11	6
Pennsylvania.....	171	146	-----	-----	1,784	1,799	19	8
East North Central States:								
Ohio.....	20	53	11	36	491	2,211	6	22
Indiana.....	12	16	-----	9	210	583	11	0
Illinois.....	128	196	56	94	728	1,965	19	28
Michigan.....	62	80	3	4	1,366	1,045	21	85
Wisconsin.....	15	11	11	33	589	1,491	4	10
West North Central States:								
Minnesota.....	7	20	-----	2	208	620	2	2
Iowa.....	2	10	-----	-----	196	85	7	1
Missouri.....	92	37	-----	3	164	185	1	16
North Dakota.....	1	10	-----	-----	21	45	1	1
South Dakota.....	3	3	2	-----	63	55	0	1
Nebraska.....	10	13	-----	-----	330	182	1	3
Kansas.....	8	8	1	1	863	560	2	8
South Atlantic States:								
Delaware.....	3	2	-----	-----	28	26	0	0
Maryland.....	10	20	13	13	119	58	2	1
District of Columbia.....	14	5	1	1	60	31	1	1
West Virginia.....	14	6	32	1	100	358	0	0
North Carolina.....	26	12	16	-----	22	23	7	4
South Carolina.....	7	11	313	235	-----	13	2	0
Georgia.....	5	10	51	18	143	27	2	5
Florida.....	5	7	-----	4	313	68	0	0

¹ New York City only.

² Week ended Friday.

*Cases of certain communicable diseases reported by telegraph by State health officers
for weeks ended May 10, 1930, and May 11, 1929—Continued*

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended May 10, 1930	Week ended May 11, 1929	Week ended May 10, 1930	Week ended May 11, 1929	Week ended May 10, 1930	Week ended May 11, 1929	Week ended May 10, 1930	Week ended May 11, 1929
East South Central States:								
Kentucky.....					50	20	2	1
Tennessee.....	7	3	30	30	240	124	37	0
Alabama.....	6	5	26	23	131	89	1	0
Mississippi.....	4	2					5	0
West South Central States:								
Arkansas.....	4	4	23	22	63	10	5	3
Louisiana.....	11	17	42	30	20	51	2	4
Oklahoma ¹	7	5	22	11	235	48	1	3
Texas.....	23	32	35	49	301	246	2	1
Mountain States:								
Montana.....	3	3		1	29	192	0	7
Idaho.....		2			7	11	2	5
Wyoming.....	1	3			22	56	0	2
Colorado.....	11	8			884	18	0	4
New Mexico.....	6	9			47	43	3	5
Arizona.....	3	4	13		212	55	3	2
Utah ¹		2	4	6	382	9	1	4
Pacific States:								
Washington.....	7	7	4	3	518	191	6	0
Oregon.....	5	6	16		111	263	1	0
California.....	55	43	22	30	2,114	121	3	22

Division and State	Polioomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended May 10, 1930	Week ended May 11, 1929	Week ended May 10, 1930	Week ended May 11, 1929	Week ended May 10, 1930	Week ended May 11, 1929	Week ended May 10, 1930	Week ended May 11, 1929
New England States:								
Maine.....	0	0	33	36	0	0	2	3
New Hampshire.....	1	0	27	7	0	1	0	1
Vermont.....	0	0	6	10	3	2	0	0
Massachusetts.....	0	1	191	198	0	13	1	9
Rhode Island.....	0	0	22	15	0	0	0	1
Connecticut.....	0	0	88	59	0	10	1	0
Middle Atlantic States:								
New York.....	6	3	582	499	2	2	17	12
New Jersey.....	0	1	232	139	1	0	0	2
Pennsylvania.....	0	2	517	390	0		20	17
East North Central States:								
Ohio.....	1	1	185	226	95	45	3	7
Indiana.....	0	0	139	181	105	81	2	5
Illinois.....	0	1	397	429	86	91	7	6
Michigan.....	0	0	252	409	54	44	3	7
Wisconsin.....	0	1	165	129	21	1	0	2
West North Central States:								
Minnesota.....	1	0	102	80	3	3	2	2
Iowa.....	0	0	44	115	91	37	0	3
Missouri.....	0	0	94	63	47	29	17	64
North Dakota.....	0	1	9	21	4	6	1	2
South Dakota.....	0	0	25	7	36	34	0	1
Nebraska.....	0	0	49	159	53	41	0	1
Kansas.....	1	0	34	102	56	70	0	0
South Atlantic States:								
Delaware.....	0	0	6	4	0	0	0	1
Maryland ¹	1	0	124	122	0	0	2	4
District of Columbia.....	0	0	14	19	0	0	2	0
West Virginia.....	0	0	35	23	28	6	21	9
North Carolina.....	0	0	38	34	5	10	2	7
South Carolina.....	1	0	5	9	3	2	11	17
Georgia.....	0	0	10	9	0	0	7	9
Florida.....	0	1	4	5	4	2	1	3

¹ Week ended Friday.

² Figures for 1930 are exclusive of Oklahoma City and Tulsa and 1929 are exclusive of Oklahoma City only.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended May 10, 1930, and May 11, 1929—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended May 10, 1930	Week ended May 11, 1929	Week ended May 10, 1930	Week ended May 11, 1929	Week ended May 10, 1930	Week ended May 11, 1929	Week ended May 10, 1930	Week ended May 11, 1929
East South Central States:								
Kentucky.....	0	0	34	25	6	21	1	6
Tennessee.....	0	0	62	31	12	58	9	7
Alabama.....	0	0	15	13	2	2	14	10
Mississippi.....	0	0	4	15	6	1	7	16
West South Central States:								
Arkansas.....	0	1	11	8	4	1	1	6
Louisiana.....	0	0	16	67	13	37	16	20
Oklahoma ¹	0	0	24	27	110	53	7	8
Texas.....	0	2	42	80	152	112	4	9
Mountain States:								
Montana.....	0	0	34	9	9	12	0	1
Idaho.....	0	0	9	10	2	5	0	0
Wyoming.....	0	1	5	2	19	25	0	1
Colorado.....	0	0	26	28	21	16	4	0
New Mexico.....	0	0	4	7	15	3	1	1
Arizona.....	1	0	13	13	15	7	1	8
Utah ¹	0	0	9	10	0	6	0	0
Pacific States:								
Washington.....	0	0	33	23	85	39	3	4
Oregon.....	0	0	16	23	34	39	2	1
California.....	11	2	127	414	55	69	11	13

¹ Figures for 1930 are exclusive of Oklahoma City and Tulsa and for 1929 are exclusive of Oklahoma City only.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Menin- gococ- cus menin- gitis	Diph- theria	Infl- uenza	Ma- laria	Mea- sles	Pe- lagra	Pollo- mye- litis	Scarlet fever	Small- pox	Ty- phoid fever
<i>April, 1930</i>										
Arizona.....	22	19	15	...	268	1	0	61	94	9
Arkansas.....	22	19	308	264	345	88	0	41	39	26
Connecticut.....	12	57	28	1	172	...	0	430	0	5
Dist. of Columbia.....	2	51	28	...	86	1	0	96	0	1
Maine.....	...	3	20	...	199	...	1	152	0	5
New Mexico.....	12	34	1	1	280	1	0	54	27	9
North Dakota.....	11	20	11	...	103	...	0	118	83	3
Tennessee.....	107	30	273	107	1,141	29	2	264	48	44
Vermont.....	...	4	...	...	381	...	0	45	18	2
Wyoming.....	2	4	2	...	179	...	1	16	34	0

<i>April, 1930</i>		Cases		Cases	
Anthrax:		Cases		Conjunctivitis:	
Connecticut.....	2			Connecticut.....	14
Chicken pox:				Maine.....	3
Arizona.....	81			New Mexico.....	4
Arkansas.....	118			Dysentery	
Connecticut.....	450			Arizona.....	1
District of Columbia.....	111			Connecticut (amebic).....	1
Maine.....	181			Tennessee.....	4
New Mexico.....	175			German measles:	
North Dakota.....	52			Connecticut.....	241
Tennessee.....	180			Maine.....	53
Vermont.....	85			New Mexico.....	2
Wyoming.....	88			Hookworm disease:	
				Arkansas.....	1

Lethargic encephalitis:	Cases	Trachoma:	Cases
Connecticut.....	1	Arizona.....	22
Maine.....	1	Arkansas.....	5
Mumps:		Tennessee.....	4
Arizona.....	183	Trichinosis:	
Arkansas.....	92	Connecticut.....	1
Connecticut.....	146	Undulant fever:	
Maine.....	321	Arizona.....	1
New Mexico.....	288	Connecticut.....	1
North Dakota.....	202	Maine.....	1
Tennessee.....	102	Tennessee.....	1
Vermont.....	29	Vincent's angina:	
Wyoming.....	77	Maine.....	4
Ophthalmia neonatorum:		North Dakota.....	29
Connecticut.....	1	Tennessee.....	10
Tennessee.....	3	Wyoming.....	2
Paratyphoid fever:		Whooping cough:	
Maine.....	5	Arizona.....	37
New Mexico.....	1	Arkansas.....	189
Rabies in animals:		Connecticut.....	181
Connecticut.....	6	District of Columbia.....	29
Rocky Mountain spotted or tick fever:		Maine.....	113
Wyoming.....	8	New Mexico.....	11
Septic sore throat:		North Dakota.....	46
Connecticut.....	13	Tennessee.....	148
Maine.....	1	Vermont.....	18
New Mexico.....	3	Wyoming.....	14
Tennessee.....	5		

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 95 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 31,725,000. The estimated population of the 88 cities reporting deaths is more than 30,135,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended May 3, 1930, and May 4, 1929

	1930	1929	Estimated expectancy
<i>Cases reported</i>			
Diphtheria:			
46 States.....	985	1,476	
95 cities.....	522	820	828
Measles:			
45 States.....	20,019	16,037	
95 cities.....	8,090	5,613	
Meningococcus meningitis:			
46 States.....	193	280	
95 cities.....	101	129	
Poliomyelitis:			
47 States.....	18	21	
Scarlet fever:			
46 States.....	4,169	5,007	
95 cities.....	1,835	1,806	1,311
Smallpox:			
46 States.....	1,393	967	
95 cities.....	171	73	72
Typhoid fever:			
46 States.....	179	214	
95 cities.....	41	47	39
<i>Deaths reported</i>			
Influenza and pneumonia:			
88 cities.....	851	748	
Smallpox:			
88 cities.....	0	0	

City reports for week ended May 3, 1930

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1921 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneu- monia, deaths reported
		Cases, estimated expect- ancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND								
Maine								
Portland	4	1	0		0	1	16	1
New Hampshire:								
Concord	0	0	0		0	0	0	0
Manchester	0	1	0		1	1	0	0
Nashua	0	0	0		0	1	0	2
Vermont								
Barre	0	0	0		0	4	0	2
Burlington	0	0	0		0	0	0	0
Massachusetts:								
Boston	52	35	23		1	505	79	38
Fall River	1	3	2	1	1	4	1	5
Springfield	8	2	3		0	0	1	0
Worcester	16	4	2		0	272	0	2
Rhode Island								
Pawtucket	13	1	1		0	4	0	2
Providence	5	6	2		0	1	0	4
Connecticut								
Bridgeport	2	4	1		0	0	0	5
Hartford	8	5	0		0	2	0	4
New Haven	16	2	0		0	10	15	5
MIDDLE ATLANTIC								
New York:								
Buffalo	20	10	8		0	23	17	21
New York	316	254	80	37	11	1,720	207	221
Rochester	29	4	4		0	58	2	0
Syracuse	21	3	0	1	0	11	73	7
New Jersey:								
Camden	3	8	0	1	2	0	0	1
Newark	50	14	31	2	0	444	29	13
Trenton	3	2	2	1	0	7	0	6
Pennsylvania:								
Philadelphia	79	63	19		3	263	87	45
Pittsburgh	46	16	12		4	294	13	42
Reading	11	2	3		0	2	4	3
Scranton	0	3	0		0	0	0	0
EAST NORTH CENTRAL								
Ohio:								
Cincinnati	12	6	2		0	70	10	12
Cleveland	126	23	26	1	1	6	36	25
Columbus	8	3	3		0	116	4	8
Toledo	34	3	2	1	1	52	15	7
Indiana:								
Fort Wayne	1	2	0		1	0	0	0
Indianapolis	21	3	2		0	11	7	13
South Bend		1						
Terre Haute	3	0	0		0	32	0	0
Illinois:								
Chicago	105	83	120	8	2	35	58	67
Springfield	6	0	0	1	1	1	0	2

City reports for week ended May 3, 1930—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneu- monia, deaths reported
		Cases, estimated expect- ancy	Cases reported	Cases reported	Deaths reported			
EAST NORTH CEN- TRAL—continued								
Michigan:								
Detroit.....	95	44	42	3	4	1,175	96	29
Flint.....	15	3	0	-----	1	151	4	3
Grand Rapids.....	10	2	0	-----	1	2	3	2
Wisconsin:								
Kenosha.....	13	0	0	-----	0	1	0	0
Madison.....	9	0	0	-----	0	26	0	4
Milwaukee.....	122	11	5	-----	0	13	100	8
Racine.....	0	2	0	-----	0	4	0	3
Superior.....	2	0	0	-----	0	3	0	0
WEST NORTH CENTRAL								
Minnesota:								
Duluth.....	8	0	0	-----	0	36	0	1
Minneapolis.....	79	13	0	-----	2	36	34	0
St. Paul.....	31	9	1	-----	0	5	14	5
Iowa:								
Davenport.....	0	0	0	-----	-----	18	0	-----
Des Moines.....	1	1	0	-----	-----	6	0	-----
Sioux City.....	2	0	0	-----	-----	161	10	-----
Waterloo.....	35	0	0	-----	-----	4	0	-----
Missouri:								
Kansas City.....	14	4	2	-----	0	18	9	6
St. Joseph.....	0	1	0	-----	0	1	0	7
St. Louis.....	43	36	27	1	1	19	20	-----
North Dakota:								
Fargo.....	1	0	0	-----	0	0	21	0
Grand Forks.....	0	0	0	-----	-----	0	0	-----
South Dakota:								
Aberdeen.....	20	1	0	-----	-----	4	8	-----
Sioux Falls.....	0	0	0	-----	-----	9	0	-----
Nebraska:								
Omaha.....	5	2	5	-----	0	47	1	5
Kansas:								
Topeka.....	0	1	0	-----	0	101	15	2
Wichita.....	4	1	0	-----	0	0	3	6
SOUTH ATLANTIC								
Delaware:								
Wilmington.....	3	1	0	-----	0	3	0	2
Maryland:								
Baltimore.....	156	21	12	5	2	28	9	37
Cumberland.....	0	0	1	-----	0	0	0	1
Frederick.....	1	0	0	-----	0	0	0	1
District of Columbia:								
Washington.....	22	11	7	-----	0	25	0	17
Virginia:								
Lynchburg.....	1	0	1	-----	1	42	4	2
Norfolk.....	3	0	1	-----	0	2	12	8
Richmond.....	7	2	0	-----	1	2	3	5
Roanoke.....	2	0	0	-----	0	288	2	5
West Virginia:								
Charleston.....	5	0	0	-----	0	1	1	1
Wheeling.....	9	1	0	-----	0	4	1	4
North Carolina:								
Raleigh.....	1	0	0	-----	0	0	0	2
Wilmington.....	4	0	0	-----	0	0	0	1
Winston-Salem.....	2	0	0	3	0	13	10	3
South Carolina:								
Charleston.....	4	0	1	20	0	0	1	2
Columbia.....	4	0	0	-----	0	0	11	2
Georgia:								
Atlanta.....	-----	1	-----	-----	-----	-----	-----	-----
Brunswick.....	0	0	0	-----	0	4	0	1
Savannah.....	3	0	0	4	2	3	0	2
Florida:								
Miami.....	5	1	1	-----	0	10	3	2
St. Petersburg.....	-----	0	-----	-----	0	-----	-----	3
Tampa.....	9	0	1	-----	0	131	7	2

City reports for week ended May 3, 1930—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneu- monia, deaths reported
		Cases, estimated expect- ancy	Cases reported	Cases reported	Deaths reported			
EAST SOUTH CENTRAL								
Kentucky:								
Covington.....	0	1	0	-----	0	2	0	0
Tennessee:								
Memphis.....	8	2	0	-----	0	0	11	5
Nashville.....	1	1	0	-----	0	14	0	0
Alabama:								
Birmingham.....	4	2	0	9	1	6	11	13
Mobile.....	0	0	0	-----	2	3	0	1
Montgomery.....	6	0	0	-----		6	0	-----
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith.....	0	0	0	-----		51	0	-----
Little Rock.....		0		-----				-----
Louisiana:								
New Orleans.....	1	7	15	6	3	10	0	9
Shreveport.....	5	0	0	-----	0	2	4	3
Oklahoma:								
Oklahoma City.....	3	1	1	-----	1	29	2	5
Tulsa.....	27	0	1	-----		76	0	-----
Texas:								
Dallas.....	13	3	7	-----	1	134	3	1
Fort Worth.....	4	2	2	-----	0	20	0	0
Galveston.....	0	0	0	-----	0	0	0	4
Houston.....	3	3	5	-----	0	4	0	5
San Antonio.....	1	2	0	-----	2	4	1	7
MOUNTAIN								
Montana:								
Billings.....	0	1	0	-----	0	0	5	0
Great Falls.....	2	0	0	-----	0	0	17	0
Helena.....	0	0	0	-----	0	1	1	0
Missoula.....	0	0	0	-----	0	1	0	0
Idaho:								
Boise.....	0	0	0	-----	0	1	0	0
Colorado:								
Denver.....	35	10	3	-----	0	480	19	6
Pueblo.....	10	1	0	-----	0	7	91	1
New Mexico:								
Albuquerque.....	9	0	0	-----	0	15	14	0
Arizona:								
Phoenix.....	0	0	0	-----	0	20	0	1
Utah:								
Salt Lake City.....	12	3	2	-----	0	181	4	0
Nevada:								
Reno.....	0	0	0	-----	0	0	0	0
PACIFIC								
Washington:								
Seattle.....	41	3	0	8	-----	278	84	-----
Spokane.....	13	2	0	2	-----	13	0	-----
Tacoma.....	6	1	3	-----	0	119	0	2
Oregon:								
Portland.....	17	6	3	-----	0	33	2	6
Salem.....	4	0	0	-----	0	4	3	0
California:								
Los Angeles.....	68	36	16	10	0	295	46	11
Sacramento.....	4	2	0	-----	0	14	23	0
San Francisco.....	57	16	11	-----	2	157	77	4

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City reports for week ended May 3, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
NEW ENGLAND											
Maine:											
Portland	3	4	0	0	0	1	0	0	0	2	28
New Hampshire:											
Concord	0	3	0	0	0	0	0	0	0	0	8
Manchester	4	1	0	0	0	1	0	0	0	0	19
Nashua	0	0	0	0	0	0	0	0	0	0	
Vermont											
Barre	0	0	0	0	0	1	0	0	0	0	4
Burlington	0	0	0	0	0	1	0	0	0	2	9
Massachusetts.											
Boston		62	0	0	0	16	1	0	0	64	259
Fall River		4	0	0	0	1	1	0	0	1	27
Springfield		5	0	0	0	4	0	0	0	6	37
Worcester		8	0	0	0	3	0	0	0	9	61
Rhode Island:											
Pawtucket	1	1	0	0	0	1	0	0	0	8	26
Providence	10	13	0	0	0	3	0	0	1	2	76
Connecticut:											
Bridgeport	11	3	0	0	0	1	0	0	0	1	34
Hartford	5	3	0	0	0	1	0	0	0	0	40
New Haven	6	5	0	0	0	2	0	1	0	4	68
MIDDLE ATLANTIC											
New York:											
Buffalo	24	27	0	1	0	12	0	0	1	8	165
New York	295	278	0	1	0	105	9	5	0	59	1,659
Rochester	13	19	0	0	0	2	0	1	0	5	63
Syracuse	9	28	0	0	0	2	0	0	0	38	58
New Jersey.											
Camden	5	2	0	0	0	0	0	0	0	0	23
Newark	30	30	0	0	0	7	0	0	0	21	132
Trenton	3	8	0	0	0	4	0	0	0	0	45
Pennsylvania:											
Philadelphia ..	93	184	0	0	0	36	3	0	0	13	496
Pittsburgh	30	49	0	0	0	17	0	1	0	36	218
Reading	5	3	0	0	0	0	0	0	0	7	27
Scranton	2	2	0	0	0	0	0	0	0	3	
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	16	29	2	4	0	9	1	0	0	1	152
Cleveland	37	52	0	0	0	20	1	1	0	39	250
Columbus	8	8	1	4	0	6	0	0	0	3	83
Toledo	12	12	1	3	0	4	0	0	0	4	78
Indiana:											
Fort Wayne	4	8	1	4	0	1	1	0	0	0	40
Indianapolis	12	33	8	4	0	3	0	1	0	8	
South Bend	4		1				0				
Terre Haute	2	2	0	2	0	1	0	0	0	0	14
Illinois:											
Chicago	117	298	2	13	0	52	2	2	0	53	719
Springfield	4	3	0	0	0	0	0	1	0	6	31
Michigan:											
Detroit	112	105	1	2	0	23	2	2	1	59	322
Flint	7	22	2	0	0	3	0	1	0	7	32
Grand Rapids ..	9	18	1	0	0	1	1	0	0	3	46
Wisconsin:											
Kenosha	2	5	0	0	0	1	0	0	0	10	8
Madison	2	7	1	1	0	1	0	0	0	11	26
Milwaukee	5	33	1	0	0	6	0	1	1	48	108
Racine	30	4	0	0	0	0	0	0	0	2	28
Superior	2	1	0	0	0	0	0	0	0	0	

City reports for week ended May 3, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- cul- osis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
WEST NORTH CENTRAL											
Minnesota:											
Duluth.....	7	8	0	0	0	1	0	0	0	17	20
Minneapolis.....	43	14	2	0	0	2	0	1	0	5	100
St. Paul.....	24	20	0	0	0	1	0	0	0	11	53
Iowa:											
Davenport.....	2	0	1	9	-----	-----	0	0	-----	0	-----
Des Moines.....	5	17	1	20	-----	-----	0	0	-----	0	36
Sioux City.....	1	3	1	4	-----	-----	0	0	-----	4	-----
Waterloo.....	2	2	0	48	-----	-----	0	0	-----	0	-----
Missouri:											
Kansas City.....	13	23	1	0	0	3	0	1	0	4	87
St. Joseph.....	3	7	1	1	0	1	0	0	0	0	36
St. Louis.....	31	96	3	2	0	8	1	0	0	11	201
North Dakota:											
Fargo.....	1	2	0	0	0	0	0	0	0	11	-----
Grand Forks.....	0	0	0	3	-----	-----	0	0	-----	0	-----
South Dakota:											
Aberdeen.....	1	0	0	34	-----	-----	0	0	-----	25	-----
Sioux Falls.....	2	0	0	0	-----	-----	0	0	-----	0	-----
Nebraska:											
Omaha.....	3	8	4	11	0	0	0	0	0	0	61
Kansas:											
Topeka.....	3	1	1	2	0	0	0	0	0	15	14
Wichita.....	3	14	1	0	0	0	0	0	0	4	38
SOUTH ATLANTIC											
Delaware:											
Wilmington.....	5	2	0	0	0	0	0	0	0	2	26
Maryland:											
Baltimore.....	33	86	0	0	0	24	2	0	0	16	251
Cumberland.....	1	0	0	0	0	0	0	0	0	0	8
Frederick.....	0	0	0	0	0	0	0	0	0	0	5
District of Colum- bia:											
Washington.....	24	23	1	0	0	12	1	0	0	5	154
Virginia:											
Lynchburg.....	1	0	0	0	0	0	0	0	0	10	13
Norfolk.....	2	1	0	0	0	2	0	0	0	0	-----
Richmond.....	3	7	0	0	0	2	0	0	0	0	52
Roanoke.....	0	0	0	0	0	1	0	1	0	3	33
West Virginia:											
Charleston.....	1	1	0	0	0	0	0	1	0	2	14
Wheeling.....	2	0	0	0	0	1	1	0	0	3	21
North Carolina:											
Raleigh.....	0	0	0	0	0	1	0	0	0	0	20
Wilmington.....	0	0	0	0	0	0	0	0	0	19	6
Winston-Salem.....	1	2	2	0	0	1	0	1	0	10	18
South Carolina:											
Charleston.....	0	1	1	0	0	2	1	0	0	1	30
Columbia.....	0	0	0	0	0	0	0	0	0	0	18
Georgia:											
Atlanta.....	4	-----	4	-----	-----	-----	0	-----	-----	-----	-----
Brunswick.....	0	0	0	0	0	0	0	0	0	0	4
Savannah.....	0	4	1	0	0	1	1	0	1	0	31
Florida:											
Miami.....	0	0	1	0	0	2	1	0	0	7	27
St. Petersburg.....	0	-----	0	-----	0	0	0	-----	0	-----	12
Tampa.....	1	2	0	0	0	4	1	0	0	0	18
EAST SOUTH CENTRAL											
Kentucky:											
Covington.....	2	3	0	0	0	0	0	0	0	0	14
Tennessee:											
Memphis.....	7	17	1	0	0	9	1	1	0	4	94
Nashville.....	2	0	1	6	0	4	0	1	0	1	35
Alabama:											
Birmingham.....	1	2	3	0	0	5	1	2	0	12	82
Mobile.....	0	0	0	0	0	1	0	0	0	1	30
Montgomery.....	0	0	0	0	-----	-----	0	0	-----	0	-----

City reports for week ended May 3, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith.....	0	0	0	0	-----		0	0	-----	2	-----
Little Rock.....	0		0		-----		1		-----		-----
Louisiana:											
New Orleans.....	7	15	0	0	0	15	2	5	0	5	154
Shreveport.....	0	2	1	0	0	2	0	0	0	2	33
Oklahoma:											
City.....	2	21	2	21	0	0	0	0	0	0	32
Tulsa.....	0	2	2	4	-----		0	0	-----	14	-----
Texas:											
Dallas.....	3	14	2	1	0	3	0	1	0	0	53
Fort Worth.....	2	3	3	0	0	0	0	0	0	0	33
Galveston.....	0	1	0	0	0	2	1	0	0	0	18
Houston.....	1	0	1	8	0	2	1	0	1	0	62
San Antonio.....	1		0	0	0	7	0	0	0	0	78
MOUNTAIN											
Montana:											
Billings.....	0	1	0	0	0	1	0	0	0	0	7
Great Falls.....	1	18	1	0	0	0	0	5	1	0	9
Helena.....	0	0	0	0	0	0	0	0	0	3	2
Missoula.....	1	0	1	5	0	0	0	0	0	0	5
Idaho:											
Boise.....	0	0	0	3	0	0	0	0	0	0	9
Colorado:											
Denver.....	12	13	0	0	0	9	0	0	0	58	80
Pueblo.....	1	1	0	0	0	1	0	1	0	0	17
New Mexico:											
Albuquerque.....	1	0	0	0	0	6	0	0	0	0	15
Arizona:											
Phoenix.....	1	0	0	2	0	4	0	0	0	0	14
Utah:											
Salt Lake City.....	2	4	2	0	0	2	0	0	0	35	33
Nevada:											
Reno.....	0	4	0	9	0	1	0	0	0	0	5
PACIFIC											
Washington:											
Seattle.....	8	11	4	1	-----		0	1	-----	15	-----
Spokane.....	5	1	7	21	-----		0	0	-----	22	-----
Tacoma.....	2	0	3	2	0	1	0	0	0	11	22
Oregon:											
Portland.....	5	0	8	15	0	4	0	3	0	29	65
Salem.....	0	0	0	0	0	0	0	0	0	4	-----
California:											
Los Angeles.....	29	40	5	9	0	12	1	0	1	25	189
Sacramento.....	2	2	1	3	0	4	0	1	0	0	35
San Francisco.....	20	0	1	0	0	9	1	1	0	2	161

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)			
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths	
NEW ENGLAND										
Massachusetts:										
Springfield.....	0	0	1	1	0	0	0	0	0	0
Worcester.....	1	0	0	0	0	0	0	0	0	0
Connecticut:										
Hartford.....	0	1	0	0	0	0	0	0	0	0

City reports for week ended May 3, 1930—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
MIDDLE ATLANTIC									
New York:									
Buffalo.....	2	2	0	0	0	0	0	0	0
New York.....	16	10	4	4	0	0	1	0	0
New Jersey:									
Newark.....	2	1	0	0	0	0	0	1	0
Pennsylvania:									
Philadelphia.....	1	1	1	0	0	0	0	1	0
Pittsburgh.....	3	1	1	1	0	0	0	0	0
EAST NORTH CENTRAL									
Ohio:									
Cleveland.....	3	2	1	1	0	0	0	1	0
Toledo.....	1	0	0	0	0	0	0	0	0
Indiana:									
Fort Wayne.....	1	0	0	0	0	0	0	0	0
Indianapolis.....	5	2	0	0	0	0	0	0	0
Terre Haute.....	1	0	0	0	0	0	0	0	0
Illinois:									
Chicago.....	6	3	1	0	0	0	0	0	0
Michigan:									
Detroit.....	17	5	1	0	0	0	1	0	0
Flint.....	1	1	0	0	0	0	0	0	0
Wisconsin:									
Milwaukee.....	1	0	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
St. Paul.....	1	1	0	0	0	0	0	0	0
Iowa:									
Sioux City.....	2	—	0	—	0	—	0	0	—
Waterloo.....	3	2	0	—	0	—	0	0	—
Missouri:									
St. Louis.....	6	3	0	0	0	0	0	0	0
SOUTH ATLANTIC									
Maryland:									
Baltimore.....	4	2	0	1	0	0	0	0	0
District of Columbia:									
Washington.....	1	1	0	0	0	0	0	0	0
North Carolina:									
Raleigh.....	0	0	0	0	0	1	0	0	0
Winston-Salem.....	0	0	0	0	1	1	0	0	0
South Carolina:									
Charleston ¹	0	0	0	0	5	2	0	0	0
Columbia.....	0	0	0	0	0	1	0	0	0
Georgia:									
Savannah.....	0	0	1	1	3	2	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis.....	11	12	0	0	1	0	0	0	0
Nashville.....	2	2	0	0	0	0	0	0	0
Alabama:									
Birmingham.....	1	0	1	0	1	0	0	0	0
Mobile.....	0	0	0	0	2	1	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith.....	1	0	0	0	0	0	0	0	0
Louisiana:									
New Orleans.....	2	2	0	0	0	0	0	0	0
Shreveport.....	0	0	0	0	0	1	0	0	0
Oklahoma:									
Oklahoma City.....	1	0	0	0	0	0	0	0	0
Texas:									
Dallas.....	0	0	0	0	1	1	0	0	0
Houston.....	0	0	0	0	0	1	0	0	0

¹ Dengue; 4 cases at Charleston, S. C.

City reports for week ended May 3, 1930—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
MOUNTAIN									
Colorado:									
Denver.....	1	1	0	0	0	0	0	0	0
Arizona:									
Phoenix.....	1	0	0	0	0	0	0	0	0
Utah:									
Salt Lake City.....	5	2	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle.....	1	0	0	0	0	0	0	0	0
California:									
Los Angeles.....	1	0	0	0	0	0	0	3	1
Sacramento.....	1	1	0	0	0	0	0	0	0
San Francisco.....	0	0	0	0	1	0	0	0	0

The following table gives the rates per 100,000 population for 98 cities for the 5-week period ended May 3, 1930, compared with those for a like period ended May 4, 1929. The population figures used in computing the rates are approximate estimates, authoritative figures for many of the cities not being available. The 98 cities reporting cases have an estimated aggregate population of more than 32,000,000. The 91 cities reporting deaths have more than 30,500,000 estimated population.

*Summary of weekly reports from cities, March 30 to May 3, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929*¹

DIPHTHERIA CASE RATES

	Week ended									
	Apr. 5, 1930	Apr. 6, 1929	Apr. 12, 1930	Apr. 13, 1929	Apr. 19, 1930	Apr. 20, 1929	Apr. 26, 1930	Apr. 27, 1929	May 3, 1930	May 4, 1929
98 cities.....	10	131	95	124	88	135	93	136	86	135
New England.....	62	135	75	117	109	141	78	110	75	81
Middle Atlantic.....	78	190	97	166	87	198	104	194	76	190
East North Central.....	108	125	115	126	90	122	116	143	132	160
West North Central.....	51	75	87	83	85	112	68	85	66	77
South Atlantic.....	59	82	73	71	69	66	59	58	46	69
East South Central.....	34	27	7	75	20	7	54	55	0	21
West South Central.....	149	114	164	122	220	99	108	126	107	99
Mountain.....	26	44	77	61	9	70	86	78	43	61
Pacific.....	59	58	59	65	43	58	57	58	71	72

¹ The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1930 and 1929, respectively.

² Fort Wayne, Ind., and Sioux City, Iowa, not included.

³ South Bend, Ind., Atlanta, Ga., and Little Rock, Ark., not included.

⁴ Fort Wayne, Ind., not included.

⁵ South Bend, Ind., not included.

⁶ Sioux City, Iowa, not included.

⁷ Atlanta, Ga., not included.

⁸ Little Rock, Ark., not included.

Summary of weekly reports from cities, March 30 to May 3, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929—Continued

MEASLES CASE RATES

	Week ended									
	Apr. 5, 1930	Apr. 6, 1929	Apr. 12, 1930	Apr. 13, 1929	Apr. 19, 1930	Apr. 20, 1929	Apr. 26, 1930	Apr. 27, 1929	May 3, 1930	May 4, 1930
98 cities.....	1,026	839	1,222	824	1,255	896	1,362	838	1,331	928
New England.....	1,327	521	1,431	638	1,491	498	1,566	561	1,773	496
Middle Atlantic.....	832	174	1,019	160	1,156	146	1,256	153	1,353	165
East North Central.....	807	1,836	913	1,946	1,084	2,023	1,023	1,964	1,026	2,322
West North Central.....	812	1,963	1,174	1,657	988	2,124	1,968	1,713	983	1,776
South Atlantic.....	793	650	976	464	966	760	1,194	536	1,098	434
East South Central.....	594	89	371	130	337	55	459	21	209	130
West South Central.....	785	244	773	232	538	175	635	278	814	343
Mountain.....	4,698	618	7,475	192	6,617	209	8,573	366	5,758	444
Pacific.....	2,343	273	2,402	319	2,100	377	2,412	377	2,069	287

SCARLET FEVER CASE RATES

	308	290	327	270	305	268	269	295	302	290
93 cities.....										
New England.....	423	341	321	317	368	242	319	292	246	278
Middle Atlantic.....	304	244	236	224	276	224	252	246	300	245
East North Central.....	381	426	428	372	395	418	366	451	393	467
West North Central.....	266	275	391	242	359	216	248	281	376	262
South Atlantic.....	253	94	282	122	277	90	227	97	258	114
East South Central.....	162	212	149	185	162	144	142	109	148	226
West South Central.....	165	270	116	229	123	225	64	217	127	274
Mountain.....	232	104	326	165	343	70	223	122	352	78
Pacific.....	196	314	253	374	168	372	205	394	123	345

SMALLPOX CASE RATES

	24	11	29	12	28	9	30	13	28	12
68 cities.....										
New England.....	0	2	2	2	2	0	0	0	0	0
Middle Atlantic.....	0	0	0	0	0	0	0	0	1	0
East North Central.....	30	15	23	20	23	11	17	17	21	15
West North Central.....	85	17	146	8	137	10	143	13	129	13
South Atlantic.....	2	4	9	4	4	2	0	2	0	0
East South Central.....	0	7	13	7	20	0	47	0	40	21
West South Central.....	19	76	30	76	75	11	41	23	36	42
Mountain.....	103	26	60	78	26	44	94	35	146	122
Pacific.....	83	17	104	10	83	60	128	80	85	39

TYPHOID FEVER CASE RATES

	5	5	5	12	6	10	6	8	7	8
98 cities.....										
New England.....	4	4	0	9	7	7	4	4	2	7
Middle Atlantic.....	3	2	1	7	2	8	5	4	3	5
East North Central.....	2	7	1	11	3	4	6	4	6	3
West North Central.....	2	4	4	25	8	10	14	12	4	10
South Atlantic.....	4	4	20	13	20	24	11	17	6	11
East South Central.....	34	7	20	21	7	7	0	21	27	27
West South Central.....	11	8	7	42	7	42	26	34	24	30
Mountain.....	17	0	43	0	17	0	0	0	51	9
Pacific.....	7	7	5	7	9	10	5	7	7	10

¹ Fort Wayne, Ind., and Sioux City, Iowa, not included.

² South Bend, Ind., Atlanta, Ga., and Little Rock, Ark., not included.

³ Fort Wayne, Ind., not included.

⁴ South Bend, Ind., not included.

⁵ Sioux City, Iowa, not included.

⁶ Atlanta, Ga., not included.

⁷ Little Rock, Ark., not included.

Summary of weekly reports from cities, March 30 to May 3, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929—Continued

INFLUENZA DEATH RATES

	Week ended									
	Apr. 5, 1930	Apr. 6, 1929	Apr. 12, 1930	Apr. 13 1929	Apr. 19, 1930	Apr. 20, 1929	Apr. 26, 1930	Apr. 27, 1929	May 3, 1930	May 4, 1930
91 cities.....	13	20	17	15	15	15	12	13	9	8
New England.....	7	11	7	7	7	9	11	7	4	2
Middle Atlantic.....	15	16	21	14	15	10	9	12	10	6
East North Central.....	10	18	8	15	13	14	13	6	7	5
West North Central.....	9	27	9	6	18	18	9	12	9	18
South Atlantic.....	7	17	52	17	20	21	11	13	12	11
East South Central.....	44	75	24	30	60	15	44	30	22	30
West South Central.....	38	47	27	31	27	51	27	43	24	8
Mountain.....	26	44	26	17	9	9	17	62	0	17
Pacific.....	0	19	15	22	3	13	0	13	6	16

PNEUMONIA DEATH RATES

	165	140	109	139	153	127	144	117	138	123
91 cities.....	165	140	109	139	153	127	144	117	138	123
New England.....	166	101	171	126	146	114	173	144	151	106
Middle Atlantic.....	194	178	195	161	190	134	168	130	172	136
East North Central.....	146	135	126	126	115	119	109	99	106	125
West North Central.....	115	147	148	114	154	108	80	111	112	126
South Atlantic.....	179	144	211	165	185	146	192	127	182	109
East South Central.....	177	142	228	164	236	157	258	67	140	172
West South Central.....	176	137	195	90	130	78	142	90	118	90
Mountain.....	180	122	180	113	163	122	146	87	60	165
Pacific.....	77	126	89	94	46	151	61	119	52	72

^a South Bend, Ind., Atlanta, Ga., and Little Rock, Ark., not included.

^b Fort Wayne, Ind., not included.

^c South Bend, Ind., not included.

^d Atlanta, Ga., not included.

^e Little Rock, Ark., not included.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Week ended April 26, 1930.—The Department of Pensions and National Health reports cases of certain communicable diseases in Canada for the week ended April 26, 1930, as follows:

Province	Cerebro-spinal fever	Influenza	Dysentery	Small-pox	Typhoid fever
Prince Edward Island ¹.....	.....	.....	.....	.....	.....
Nova Scotia.....	.....	5	.....	.....	.....
New Brunswick ¹.....	.....	.....	.....	.....	.....
Quebec.....	6	.....	.....	.....	22
Ontario.....	2	6	.....	18	1
Manitoba.....	1	.....	.....	.....	1
Saskatchewan.....	.....	.....	.....	7	2
Alberta.....	3	.....	.....	.....	.....
British Columbia.....	.....	.....	1	5	.....
Total	12	11	1	30	26

¹ No case of any disease included in the table was reported during the week.

Quebec Province—Communicable diseases—Week ended May 3, 1930.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended May 3, 1930, as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis.....	3	Ophthalmia neonatorum.....	2
Chicken pox.....	95	Puerperal septicaemia.....	2
Diphtheria.....	33	Scarlet fever.....	111
Erysipelas.....	7	Tuberculosis.....	74
Influenza.....	7	Typhoid fever.....	35
Measles.....	158	Whooping cough.....	48
Mumps.....	96		

Ontario Province—Communicable diseases (comparative)—Four weeks ended April 26, 1930.—The following table shows the number of cases of certain communicable diseases, with deaths therefrom, reported in the Province of Ontario, Canada, for the four weeks ended April 26, 1930, as compared with the corresponding period of 1929.

Disease	Four weeks 1929		Four weeks 1930	
	Cases	Deaths	Cases	Deaths
Cerebrospinal meningitis.....	13	1	12	5
Chicken pox.....	593	—	836	—
Conjunctivitis.....	4	—	—	—
Diphtheria.....	212	13	167	7
Dysentery.....	1	—	—	—
Erysipelas.....	—	—	1	—
German measles.....	18	—	701	—
Goiter.....	4	1	2	—
Gonorrhea.....	207	—	189	—
Influenza.....	153	16	43	10
Lethargic encephalitis.....	2	—	2	1
Measles.....	2,347	1	2,785	4
Mumps.....	758	—	152	—
Paratyphoid fever.....	1	—	—	—
Pneumonia.....	—	147	—	221
Puerperal septicemia.....	—	2	1	—
Scarlet fever.....	455	4	1,049	5
Septic sore throat.....	21	—	21	1
Smallpox ¹	83	—	74	—
Syphilis.....	216	—	204	—
Tuberculosis.....	116	51	131	70
Typhoid fever.....	85	2	5	—
Undulant fever.....	—	—	7	—
Whooping cough.....	621	4	251	1

¹ Cases of smallpox for this period were distributed as follows: Sudbury, 20; Ottawa, 19; Neeling, 11; Chelsey, 3; Shelburne, 3; Rosanquet, 2; Thedford, 2; Hunsworth N., 2; Hamer, 2; 1 case each in the following places: Iroquois Falls, S. Plantagenot, Fonthill, Nepean, Chelmsford, Englehart, North Bay, Waters, Wheatley, and Lanark Tp.

CUBA

Provinces—Communicable diseases—Four weeks ended April 12, 1930.—During the four weeks ended April 12, 1930, cases of certain communicable diseases were reported in the Provinces of Cuba as follows:

Disease	Pinar del R. o	Havana	Matanzas	Santa Clara	Camagüey	Oriente	Total
Cancer.....	—	2	1	—	—	—	3
Chicken pox.....	—	52	—	15	4	13	84
Diphtheria.....	—	12	—	2	4	1	19
Malaria.....	1	6	—	—	12	27	46
Measles.....	3	4	—	6	1	2	16
Paratyphoid fever.....	—	2	1	5	1	3	12
Scarlet fever.....	—	20	1	—	—	—	21
Typhoid fever.....	6	15	9	16	9	34	89

MEXICO

Tampico—Communicable diseases—April, 1930.—During the month of April, 1930, certain communicable diseases were reported in Tampico, Mexico, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Chicken pox.....	4		Measles.....	6	1
Diphtheria.....	1	1	Poliomyelitis.....		1
Enteritis (various).....	16	33	Smallpox.....	7	4
Influenza.....	36	1	Tuberculosis.....	60	30
Leprosy.....	1		Typhoid fever.....	7	1
Malaria.....	68	9	Whooping cough.....	11	3

PORTO RICO

San Juan—Communicable diseases—Five weeks ended April 26, 1930.—During the five weeks ended April 26, 1930, cases of certain communicable diseases were reported in San Juan, P. R., as follows:

Disease	Cases	Disease	Cases
Diphtheria.....	5	Tetanus.....	2
Filariasis.....	1	Tuberculosis.....	81
Malaria.....	2	Typhoid fever.....	2
Measles.....	2	Whooping cough.....	2

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

From medical officers of the Public Health Service, American consuls, International Office of Public Hygiene, Pan American Sanitary Bureau, health section of the League of Nations, and other sources. The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

CHOLERA

[C Indicates cases, D, deaths, P, present]

Place	Oct. 20- Nov 16, 1929	Nov. 17- Dec. 14, 1929	Dec. 15, 1929- Jan. 11, 1930	Jan. 12- Feb. 8, 1930	Week ended—									
					February, 1930		March, 1930							
					15	22	1	8	15	22	29	5	12	19
China:														
Canton.....														
Hankow.....	2	2												
Marchuria—Dairen.....								1						
Nanking.....	P													
Swatow.....	12													
India:														
Basseln.....	17,340	19,352	12,350	16,481	1,577	1,258	1,515	1,564	1,833	2,278				
Bombay.....	10,680	10,903	6,507	3,608	877	765	900	829	923	1,225				
Calcutta.....														
Madras.....	252	265	138	292	65	46	53	105	97	53	110	119	165	
Nagapatam.....	129	114	10	110	45	27	25	56	73	25	51	71	118	
Rangoon.....	3	2	2											
Tuticorin.....	2													
India (French):														
Chanderdagar.....	2	1	1	4			1	1	1	1				
Karikal.....	3	1	3	3			1		1	1				
Pondicherry Province.....	3	23	33	3										
Indo-China (see also table below):														
Pnompenh.....	4	4	1	12	1	2	1	1	1	1				
	43	4	3	11			5	2	1	2				
	37	3	3	8	1	2	3	1	1	2	1	2		2

Saigon and Cholon.....	C	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
Siam.....	D	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
Bangkok.....	C	7	11	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1
Nagara Pathom.....	D	3	9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
On vessel:	D	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
S. S. at Suva, Fiji Islands.....	C																		
S. S. Sutley, at Batavia, from Calcutta.....	C																		

Place	October, 1929	November, 1929	December, 1929	January, 1930			February, 1930			March, 1930			April, 1930		
				1-10	11-20	21-31	1-10	11-20	21-23	1-10	11-20	21-31	1-10	11-20	11-20
Indo-China (French) (see also table above):															
Annam.....	C	2	41	1			2								
Cambodia.....	C	43	46	71	76	41	3	46	40	32	53	18	6		
Cochin-China.....	C	15		67	110	64	36	21	5	22	43				

PLAGUE

Place	Oct 20- Nov. 16, 1929	Nov 17- Dec. 14, 1929	Dec 15, 1929- Jan. 11, 1930	Jan. 12- Feb. 8, 1930	Week ended—										
					February, 1930		March, 1930					April, 1930			May 3, 1930
					15	22	1	8	15	22	29	5	12	19		26
Argentina:															
Andalgala. ²															
Rosario				P											
Plague-infected rats	2														
Santa Fe	3			6											
Tucuman	1														
Villa Lia															
Azores: Ponta Delgada			P												
Belgian Congo: Djugu		2													

¹ Reports incomplete.

² On Mar. 11, 3 deaths from bubonic plague were reported in Andalgala, Catamarca Province, Argentina, since Feb. 5, 1930.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE—Continued

[C indicates cases; D, deaths; P, present]

Place	Week ended—												May 3, 1930			
	February, 1930			March, 1930						April, 1930						
	15	22	1	8	15	22	29	5	12	19	26					
Brazil:																
Rio de Janeiro.....				1												
Seo Paulo.....				1												
British East Africa (see also table below):																
Tanganyika.....						7										
Uganda.....	C	C	C	82					30	40				11		
Uganda.....	D	D	D	70					26	33				10		
Ceylon:																
Colombo.....				2				1		1	1	1	2	1	1	
Plague-infected rats.....	D	D	D	4				1		1	1	1	2	1	1	
Chile: Antofagasta.....				1				1								
Chile: Antofagasta.....	C	C	C	1								1	2			
Dutch East Indies:																
Batavia and West Java.....	C	C	C	167					46	34	41	23				
Batavia and West Java.....	D	D	D	296					37	46	42	23				
Plague-infected rats				164					37	46	33	2				
Celebes—Makassar.....	C	C	C	3				2	1				1		6	2
Celebes—Makassar.....	D	D	D	1												
Plague-infected rodents.....				4												
East Java and Madura.....	C	C	C	23												
East Java and Madura.....	D	D	D	29												
Java and Madura.....	D	D	D	458												
Surabaya.....	C	C	C	317				69	105	58	59					
Surabaya.....	D	D	D	4												
Ecuador (see table below).																
Egypt:																
Alexandria.....	C	C	C	2												
Alexandria.....	D	D	D	4												
Assiout.....	C	C	C	1												
Assiout.....	D	D	D	1												
Assiout.....	C	C	C	2												
Assiout.....	D	D	D	2												
Assiout.....	C	C	C	2												
Assiout.....	D	D	D	2												
Assiout.....	C	C	C	2												
Assiout.....	D	D	D	2												
Assiout.....	C	C	C	2												
Assiout.....	D	D	D	2												
Assiout.....	C	C	C	2												
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Assiout.....	C	C	C	2												
Assiout.....	D	D	D	2												
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Assiout.....	C	C	C	2												
Assiout.....	D	D	D	2												
Assiout.....	C	C	C	2												
Assiout.....	D	D	D	2												
Assiout.....	C	C	C	2												
Assiout.....	D	D	D	2												
Assiout.....	C	C	C	2												
Assiout.....	D	D	D	2												
Assiout.....	C	C	C	2												
Assiout.....	D	D	D	2												
Assiout.....	C	C	C	2												
Assiout.....	D	D	D	2												
Assiout.....	C	C	C	2												
Assiout.....	D	D	D	2												
Assiout.....	C	C	C	2												
Assiout.....	D	D	D	2												
Assiout.....	C	C	C	2												
Assiout.....	D	D	D	2												
Assiout.....	C	C	C	2												
Assiout.....	D	D	D	2												
Assiout.....	C	C	C	2												
Assiout.....	D	D	D	2												
Assiout.....	C	C	C	2												
Assiout.....	D	D	D	2												
Assiout.....	C	C	C	2												
Assiout.....	D	D	D	2												
Assiout.....	C	C	C	2												
Assiout.....	D	D	D	2												
Assiout.....	C	C	C	2												
Assiout.....	D	D	D	2												
Assiout.....	C	C	C	2												
Assiout.....	D	D	D	2												
Assiout.....	C	C	C	2												
Assiout.....	D	D	D	2												
Assiout.....	C	C	C	2												
Assiout.....	D	D	D	2												
Assiout.....	C	C	C	2												
Assiout.....	D	D	D	2</												

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place	Oct. 20- Nov. 16, 1929	Nov. Dec. 14, 1929	Dec. 15, 1929- Jan. 8, 1930	Week ended—												May 3, 1930
				February, 1930			March, 1930						April, 1930			
				15	22	1	8	15	22	29	5	12	19	26		
Canada:																
Alberta:																
Edmonton	12	22	16	22	1	3		2	5	2	1	3	1			
British Columbia—Vancouver	12	11	15	19	1			1	1	1	2	3				
Manitoba	9	14	17	16	4	1	6	1	7	3	9	8	1	5		
Ontario	2	6	8	6	2			2	1	1		2				
Fort William	17	63	51	63	28	8	50	38	27	26	9	17	30	18		
London	4			4												
Niagara Falls																
North Bay	1															
Ottawa	5	2		2	1	2	6	9		6	4	8	4	7	2	
Sarnia	1	4	7	10												
Toronto	1			2												
Windsor	2															
Quebec	22	10	3	11												
Montreal				1												
Saskatchewan				86												
Regina	11	40	61	31	2	64	10	9	11	15	12	3	10	7		
Saskatoon	13		31													
Ceylon:																
Angoda, Western Province	C															
Colombo	D		1	1	2	1										
	D				2											
China:																
Canton	C	4	5	7	4	4	1	2	1	1	4		2	1		
Chungking	D		2	2	1											
Foochow	C	P	P	P	P	P	P	P	P	P	P	1	1			
Hong Kong	C	P	P	P	P	P	P	P	P	P	P	P				
	15	62	102	118	18	16	10	12	10	5	11	20	7			
	13	55	73	109	15	11	10	6	10	4	5	11	9	3		
Manchuria—	D															
Harbin	C	1	2	3												
Kwantung—Dairen	C		1	1			1	P								
Nanking	C	P	P	P	P							P	1			
Shanghai	C															
Foreigners only	C	4	5	7			2	1		1		2				

Swatow.....	D	1	4	2	3	3	1	2	2	1	2		
Tientsin.....	C												
Chosen (see table below).....	C												
Colombia:.....	C												
Barranquilla.....	C	50	56	1	100	1	1	1			7	5	
Buenaventura.....	D		1										
Costa Rica:.....	C												
Port Limon.....	C												
San Jose.....	C												
Curacao (astron).....	C												
Dutch East India:.....	C												
Belawan Deli.....	C	4	1	1									
Borneo-Samarinda.....	C	8											
Java:.....	C												
Batavia and West Java.....	C	11	27	17	14	2	3	4	3		1		1
East Java and Madura.....	D	13	13	10	7	1	1	2	3		2		
Sangi Islands.....	D	10											
Sumatra.....	D	4	1	1	2								
Egypt:.....	C												
Alexandria.....	C		5		2								
Port Said.....	C												
Great Britain:.....	C	643	994	1,005	1,455	322	576	439	393	449	457	423	345
England and Wales.....	C												
Aston under Lyne.....	C	1	6	3	4	3	8	7	11	2	4	9	3
Bradford.....	C	13	20	8	5	2							
Cardiff.....	C		1										
Leeds.....	C												
London.....	C	174	321	480	597	138	193	183	185	106	181	169	129
London and Great Towns.....	C	442	753	739	1,101	255	312	252	297	240	332	368	294
Newcastle on Tyne.....	D		1		2	1	4			1	1	2	
Shelford.....	C												
Soke-on-Trent.....	C	9	1	12	12	2	10	20	9	5	3	1	
Greece: Patras.....	C												
India:.....	C	7	6	11	11								
Bombay.....	C	3,937	7,644	12,730	28,524	9,100	9,061	8,081	9,791	9,269	10,122		
Calcutta.....	C	739	1,963	3,720	6,342	1,922	1,668	1,762	1,938	1,253	1,187		
Cochin.....	C	12	42	119	342	112	185	173	198	233	187		
Karachi.....	C	4	14	58	164	57	74	95	117	163	155		
	C	4	14	58	164	57	74	95	117	163	155		
	C	4	20	62	130	49	52	56	116	77	138		
	C	96	387	234	234	62	17	31	16	87	71		
	D	11	72	20	27	5	8	8	14	11	11		
	D	2	7	17	30	5	11	22	14	13	12		
	D	1	2	11	9	4	4	8	5	3	3		

15 cases of smallpox were reported Apr. 14 in Costa Rica outside of city of San Jose.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		Octo-ber, 1929	December, 1929			January, 1930			February, 1930			March, 1930			Apr. 1-10, 1930
			1-10	11-20	21-31	1-10	11-20	21-31	1-10	11-20	21-28	1-10	11-20	21-31	
Belgian Congo.....	C		42	41	33										
Dahomey.....	D		2	4											
Indo-China (see also table above).....	C	4	19	19											
Ivory Coast.....	C	128	245	142		136	140	184	148	286				26	261
Sudan (French).....	C		P	17		4		225	12	P			7	409	371
Syria: Beirut.....	D	28	60	10	9	6	18	6	25	1	10	501	258	18	31
	D	1	6				6	46	4	7		4	8	5	10
Taiwan: Taihoku.....	C									31	12	31			

Place		Oc-to-ber, 1929	De-cem-ber, 1929	Jan-uary, 1930	Feb-ruary, 1930	March, 1930	Place	Oc-to-ber, 1929	De-cem-ber, 1929	Jan-uary, 1930	Feb-ruary, 1930	March, 1930
Bahia: La Paz.....	C	120	22				Nigeria.....	228	293			
British East Africa (see also table above).....	C			12	12	6		47	45	70		
Kenya.....	C		168	1	4		Persia.....	37	P			
Chosen.....	C	2	4	12	6	5		159				
Mexico: Durango (see also table above).....	D	2	2	12	5		Turkey.....	100	136	893	215	114
Morocco.....	C	12	41	29	74			29	12	457	66	42

TYPHUS FEVER

Place	Week ended—															
	Oct. 1929				January, 1930				February, 1930				March, 1930			
	Oct. 20-29, 1929	Nov. 10-19, 1929	Nov. 17-26, 1929	Dec. 1-10, 1929	Dec. 11-20, 1929	Jan. 1-10, 1930	Jan. 11-20, 1930	Jan. 21-30, 1930	Feb. 1-10, 1930	Feb. 11-20, 1930	Feb. 21-30, 1930	Mar. 1-10, 1930	Mar. 11-20, 1930	Mar. 21-30, 1930	Apr. 1-10, 1930	Apr. 11-20, 1930
Algeria:																
Algiers.....																
Constantine Department.....																
Oran.....																
Bolivia: La Paz.....																
Brazil: Sao Paulo. ¹																
Bulgaria.....																
Sofia.....																
Chile:																
Talcahuano.....																
Valparaiso.....																
China: Tientsin.....																
Chosen (see table below).																
Czechoslovakia (see table below).																
Egypt:																
Assuan.....																
Bebeira Province.....																
Cairo.....																
Dakahlieh.....																
Port Said.....																
Suez.....																
Greece (see table below).																
Iraq: Baghdad Liwa.....																
Ireland:																
Irish Free State.....																
Dingle—Kerry County.....																
Northern Ireland—Cookstown.....																
Latvia (see table below).																
Lithuania (see table below).																
Mexico: Mexico City, including municipalities in Federal district.....																

¹ Press reports show that 10 deaths from typhus fever occurred in Sao Paulo, Brazil, from Nov. 3 to 30, 1929.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER—Continued

[C indicates cases; D, deaths; P, present]

Place	Week ended—																				
	Oct. 15, 1929-17, 1929			Nov. 12, 1929-14, 1929			Dec. 9, 1929-11, 1929			January, 1930			February, 1930			March, 1930			April, 1930		
	20-22			17-19			14-16			11-13			8-10			5-7			2-4		
	1930			1930			1930			1930			1930			1930			1930		
	Oct. 15, 1929-17, 1929	Nov. 12, 1929-14, 1929	Dec. 9, 1929-11, 1929	Jan. 8, 1930	Jan. 15, 1930	Jan. 22, 1930	Jan. 29, 1930	Feb. 5, 1930	Feb. 12, 1930	Feb. 19, 1930	Feb. 26, 1930	Mar. 5, 1930	Mar. 12, 1930	Mar. 19, 1930	Mar. 26, 1930	Apr. 2, 1930	Apr. 9, 1930	Apr. 16, 1930	Apr. 23, 1930	Apr. 30, 1930	
Morocco.....	C	4	2	6	7	2	7	7	2	8	11	4	7	14	13	6	5	3	2	1	
Palestine.....	D	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Peru: Arequipa (see table below).	C	62	74	61	67	96	52	81	72	55	56	54	43	61	59	64	4	2	1	1	
Poland.....	C	3	10	4	5	7	8	1	3	2	3	2	2	2	4	4	2	1	1	1	
Portugal: Oporto.....	C	19	103	82	41	48	96	56	88	68	54	90	59	64	4	2	1	1	1	1	
Rumania.....	D	2	10	5	8	2	7	8	11	2	5	7	2	2	4	4	2	1	1	1	
Tunisia.....	C	1	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Turkey (see table below).	C	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
Union of South Africa.	C	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
Cape Province.....	C	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
Natal.....	C	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
Orange Free State.....	C	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
Transvaal.....	C	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
Yugoslavia (see table below).	C	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
Chosen: Seoul.....	C	1	10	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	
Czechoslovakia.....	C	1	10	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	
France.....	C	1	10	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	
Greece: Athens.....	C	6	12	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	
Latvia.....	C	2	18	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	
Lithuania.....	D	6	4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
	1	1	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	

YELLOW FEVER

On April 22, 1930, 2 cases of yellow fever were reported at Mago, Brazil. Mago is on the Leopoldina Railway, between Rio de Janeiro and Niteroi.

UNITED STATES TREASURY ~~DEPARTMENT~~

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SPECIAL ARTICLES

The Abusive Use of Narcotic Drugs in Egypt
Response of Guinea Pigs to Ethyl Benzene Vapors
Occupational Mortality for the Years 1915-1926
Summary of Current State Mortality Statistics



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HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. R. C. WILLIAMS, *Chief of Division*

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NO. 22

THE ABUSIVE USE OF NARCOTIC DRUGS IN EGYPT *

A REVIEW

By W. L. TREADWAY, *Assistant Surgeon General, Narcotics Division, United States Public Health Service*

Two articles on the abusive use of narcotic drugs in Egypt appear in the printed proceedings of the International Congress of Tropical Medicine and Hygiene, held in Cairo, Egypt, in December, 1928. Both articles contain information of value as reflecting the relationship of the abusive use of narcotic drugs to the general health. They also contain certain epidemiological data dealing with this subject which may be of interest to the public health official. The first article is entitled "Investigations of Narcotics in Egypt," by Dr. Abdel Wahab Mahmud, S. O. O., Cairo Central Prison. The second article is entitled "Heroin Habit in Egypt as Seen in Prisoners," by Aly Hassan El Ranly.

The article by Dr. Abdel Wahab Mahmud has to do with a group of narcotic drug addicts coming within the purview of the official responsible for the health of the inmates of the Cairo Central Prison. He divides the use of narcotics in Egypt into two periods—before and after the World War. The advent of the World War seems to have modified or altered the use of narcotic drugs in Egypt. Previous to 1914 the smoking of hasheesh or cannabis indica, and of opium, was fairly widespread among the middle and working classes. Both of these substances were smoked when mixed with tobacco or both were masticated into a paste with other substances. Manual laborers were accustomed to taking small doses of opium as a stimulant and as a sedative in the evening. It was used as a home remedy for the relief of pain and as a general narcotic.

During and subsequent to the World War the use of narcotic drugs was characterized by a much more extensive use of morphine and cocaine, these drugs replacing the smoking or eating of opium and hasheesh. The use of morphine, heroin, and cocaine spread, not only among the very poor, but among the very rich also. The use of these drugs was enhanced by the financial prosperity following the war and the great growth of the illicit traffic in these drugs stimulated by the enormous profits to be had. The article points out that there

* Tome II, Cairo National Press, 1929. "International Congress of Tropical Medicine and Hygiene," Cairo, Egypt, December, 1928.

has been a decrease in the number of cocaine addicts within recent years and a substitution of heroin for cocaine. This is due to the difference in price, cocaine being much more expensive than heroin.

Of the 1,000 addicts admitted to the Cairo Central Prison in 1928, 64.9 per cent were between 20 and 30 years of age; 25 per cent were between 31 and 45 years of age; and 9.7 per cent were between 46 and 60 years of age. In 1927, 57 per cent were between 20 and 30 years of age; 35 per cent were between 31 and 45 years of age; and 7 per cent were between 46 and 60 years of age. This age distribution indicates that a greater proportion of young addicts were coming within the purview of prison officials in 1928 than in 1927.

The drugs of preference among the addicts admitted to the prison were as follows: Heroin was preferred by 65 per cent of the addicts; cocaine by 3½ per cent; and hasheesh by 10.2 per cent. Heroin was a very popular drug among women addicts, it being preferred by 83 per cent of the women under care. Some of the reasons given for preferring heroin were that it does not cause insomnia; small doses are sufficient to give the maximum effect; it is easily accessible; it is less costly than cocaine; and it is more quickly efficacious. Moreover, the effects of heroin were preferable to those of hasheesh, cocaine, or morphine.

The reasons given for acquiring opium addiction by the several addicts under observation include relief from worry incurred by hard work; relief from the hasheesh habit; relief from pain and the production of sleep; imitation of elder brothers; and an increasing possibility for the greater consumption of alcoholic beverages. In some instances married women attributed their addiction to the compulsion of their husbands and others became addicted while trafficking in the drug.

The article points out that a variety of alleged cures for drug addiction have appeared in Egypt in recent years. Practically all of these cures contain a proportion of narcotic drugs. In the treatment of the condition a gradual reduction method was used for all varieties of addiction. The article proposes a program for the control of narcotics, which, briefly, includes the following:

- (1) More stringent antinarcotic laws.
- (2) Widespread and intensive educational program, including the use of moving pictures.
- (3) Greater vigilance and supervision on the part of customs and coast guard authorities to prevent smuggling.
- (4) An increase in the number of inspectors and greater regulation of the medical profession in prescribing opium.
- (5) The prohibition of the access of heroin to the country.
- (6) Development of a special corps of police for antinarcotic work.
- (7) The establishment of sanatoria and homes for addicts.

The article by Aly Hassan El Rarnly dealing with the heroin habit in Egypt as seen in prisoners, points out that before and during the

first two years of the war cocaine was used by a very limited number of spoiled, rich young men in Egypt. By the end of the war the cocaine habit had spread amongst all classes, and especially among the working classes. Until 1920, cocaine was the drug most prevalently used, and heroin was used only by a very limited number of people. Since the latter year, however, the use of heroin has become more widespread and has been met with an enthusiastic reception by former cocaine addicts.

Of the 1,000 addicts coming within the purview of this study, only 5 used cocaine alone, while 43 used a mixture of cocaine and heroin. In Egypt the heroin addict first used the drug either in powder or watery solution, it being administered by sniffing. Subsequently, addicts became dissatisfied with the effects obtained by this method of administration and adopted the subcutaneous method, but finally resorted to the intravenous method of administration. The statistical data presented in the article indicate that since 1925 an increased proportion of heroin addicts were adopting the intravenous method of administration in lieu of the subcutaneous route.

In many instances the use of cocaine was adopted in connection with or associated with the use of alcoholic beverages. The general opinion appears to prevail among the addicts observed that greater quantities of alcoholic beverages could be consumed with the synchronous taking of cocaine.

Of 3,000 addicts observed, only 90 were women. In 73 per cent the ages were between 20 and 30 years; in 15 per cent, between 30 and 40 years; in 3 per cent, between 40 and 50 years; and in 9 per cent, between the ages of 15 and 20 years. Of all the heroin addicts observed, 26 per cent used in addition thereto other forms of opium, hasheesh, cocaine, and alcohol. Excessive use of alcohol seems to be an important complicating factor in heroin addiction in Egypt. In many instances, however, the heroin addict did not use alcohol unless it was associated with the use of cocaine.

ACUTE RESPONSE OF GUINEA PIGS TO VAPORS OF SOME NEW COMMERCIAL ORGANIC COMPOUNDS

II—ETHYL BENZENE¹

By W. P. YANT, *Supervising Chemist*, H. H. SCHRENK, *Associate Toxicologist*, C. P. WAITE, *Assistant Surgeon*,² and F. A. PATTY, *Assistant Physiological Chemist*, Health Laboratory Section, Bureau of Mines Experiment Station, Pittsburgh, Pa.

This report on the acute response of guinea pigs to ethyl benzene vapors is the second of a series of similar reports which deal with studies pertinent to evaluating the hazards involved in exposure

¹ Published by permission of the director, U. S. Bureau of Mines.

² Assistant surgeon, U. S. Public Health Service, detailed to the Bureau of Mines

to some chemical products which have recently reached, or promise to reach, important domestic and industrial use. The investigation was undertaken at the request of the Carbide and Carbon Chemicals Corporation, and was conducted jointly with the United States Bureau of Mines at its Pittsburgh Experiment Station. The first report of the series dealt with exposure to ethylene dichloride vapors.³

PRESENT USE OF ETHYL BENZENE

The following are the principal present-day uses or contemplated uses of ethyl benzene. Antiknock, especially for airplane fuel; small use as a lacquer diluent; synthesis of styrols for the styrol type of resins; general solvent, especially for paraffin waxes; and for "spotting" in the making of cellulose acetate silks.

SCOPE OF WORK

The scope of work included a study of the toxicity of ethyl benzene and the physiological response to its vapors as determined by exposure of guinea pigs. Only the acute effects as produced by a single exposure were studied. The experiments were planned to give information relative to the concentrations and periods of exposure which produce but slight response, moderate response, and serious response.

DESCRIPTION OF MATERIAL USED FOR TESTS

Ethyl benzene, $C_6H_5C_2H_5$, is a colorless liquid which possesses a pungent odor and is irritating to the eyes and mucous membranes. The boiling point of the pure compound is $136.5^\circ C.$ at 776.7 mm. Hg.; specific gravity, 0.868 at 20/4; vapor pressure, 15.3 mm. Hg. at $20^\circ C.$ It is stable and resistant to hydrolysis. The vapor is nearly four times heavier than air.

The material used in the tests described in this report was a commercial product which had the following properties: -

Boiling range, 95 per cent between 135.2° and $136.5^\circ C.$; specific gravity, 0.8599 at 25/15; and flash point, $23.3^\circ C.$

From a consideration of the manufacturing process, the only apparent impurities are benzol (B. P. $79.6^\circ C.$) and diethyl benzene (B. P. 182° to $184.5^\circ C.$) the boiling points of which differ widely from ethyl benzene.

TEST APPARATUS, TEST PROCEDURE, AND DESCRIPTION AND CARE OF ANIMALS

The test apparatus, test procedure, and description and care of animals, were the same as described in the report (cited) dealing with ethylene dichloride, to which the reader is referred. The composition

³ Sayers, R. R., Yant, W. P., Waite, C. P., and Patty, F. A.; Acute response of guinea pigs to vapors of some new commercial organic compounds. I. Ethylene dichloride. *Pub. Health Rep.*, vol. 45, No. 5, Jan. 31, 1930, pp. 225-230. (Reprint No. 1349.)

of the atmosphere was determined by calculation from the quantity of material used and was checked by absorption in air-equilibrated activated charcoal and by determining the gain in weight for absorption from a measured volume of the vapor-air mixture.

RESULTS OF TESTS

The detailed test data are too voluminous to be presented in this report; accordingly, only the summarized results pertinent to symptoms, gross pathology, and fatality are given. Specimens of tissue were taken for microscopic examination, a report of which will be made later.

SYMPTOMS OF ANIMALS

Control animals.—No symptoms or death occurred in the control animals, which numbered approximately one-third the number of animals exposed to vapor.

Exposed animals.—Concentrations of 0.5 and 1 per cent of ethyl benzene vapor in air produced immediate intense irritation to the conjunctiva and nasal mucous membrane, as evidenced by squinting of the eyes and lacrimation and by rubbing and scratching at the nose with the forepaws. Further symptoms noted in their order of occurrence were as follows: Unsteadiness and staggering on attempting to move about; apparent unconsciousness; intermittent tremors and twitching of the extremities, which at first were severe and constant, and later became less frequent and weaker; and changes in the respiration. A concentration of 0.2 per cent ethyl benzene produced moderate eye and nasal irritation in one minute. An apparent vertigo was observed in all pigs at the end of 390 minutes, and static and motor ataxia was observed in 480 minutes. Apparent unconsciousness occurred in only one pig, at the end of 345 minutes. In 3 minutes 0.1 per cent concentration caused only a slight nasal irritation, and in 8 minutes a slight lacrimation; both disappeared at the end of 30 minutes. No further symptoms were observed during the exposure of 480 minutes.

In the animals exposed to 0.5 per cent vapor the respiration remained apparently normal until after unconsciousness occurred, when it became shallow. Toward the end of the test it was difficult to determine whether breathing was present or not. Animals exposed to 1 per cent vapor-air mixture developed a rapid, jerky type of respiration very soon after unconsciousness occurred, which later became shallow and gradually slowing in rate until a very slow gasping type of respiration developed.

Table 1 gives the average time required to produce the symptoms observed, using 0.1, 0.2, 0.5, and 1 per cent by volume of vapor in air.

TABLE 1.—Symptoms produced in guinea pigs during exposure to ethyl benzene vapor

Type of symptom	Minutes of exposure causing symptoms at given per cent concentration of vapor			
	0.1 per cent	0.2 per cent	0.5 per cent	1 per cent
1. Eye irritation—squinting and lacrimation.....	8	1	1	1
2. Nasal irritation—rubbing nose.....	3	1	1	1
3. Vertigo—unsteadiness.....	(1)	390	26	4-10
4. Static and motor ataxia.....	(1)	480	30	4-10
5. Apparent unconsciousness.....	(1)	(1)	160	18
6. Tremors of extremities.....	(1)	(1)	178	5-18
7. Rapid jerky respiration.....	(1)	(1)	(1)	21
8. Shallow respiration.....	(1)	(1)	215	57
9. Very slow gasping type of respiration.....	(1)	(1)	(1)	260

¹ Not observed.² 1 pig unsteady in 270 minutes; same pig unconscious at 345 minutes; tremors at 480 minutes.

SYMPTOMS EXPERIENCED BY MEN

Six men upon breathing 0.1 per cent vapor in air found the atmosphere very irritating to the eyes, producing a sensation of smarting and burning, accompanied by profuse lacrimation. This irritation gradually decreased on continued exposure until, after a minute or two, it was scarcely noticeable. Two men upon leaving and returning to the chamber noticed no eye irritation. It was the opinion of the observers that this atmosphere could be tolerated after the first few minutes. The same six observers found 0.2 per cent vapor almost intolerable on first entering the chamber, although it became less irritating upon continued exposure. One observer stayed in the atmosphere five minutes and found that the irritation to the eyes and throat gradually disappeared, but a vertigo developed. Exposure to 0.2 per cent was accompanied by throat irritation and a feeling of constriction of the chest. Four observers exposed six minutes while a concentration of 0.2 per cent vapor was being "built up" noticed a moderate nasal irritation and a moderate to strong eye irritation. All complained of dizziness upon leaving the atmosphere. Three observers upon entering a 0.5 per cent mixture of ethyl benzene with air found the atmosphere intolerable, being extremely irritating to the eyes, nose, and throat.

It was the opinion of the men exposed to the vapors of ethyl benzene that a 0.2 per cent concentration of vapor would give ample warning and would not be tolerated; and that 0.5 per cent would have sufficient irritating properties to render working in this atmosphere impossible.

GROSS PATHOLOGY

Control animals.—A total of 18 control guinea pigs were killed for autopsy. These animals were taken from the same stock and were selected in the same manner as were the groups of animals used for exposure to ethyl benzene vapor-air mixtures. No significant gross pathology was found in the control animals.

Exposed animals.—The gross pathological findings in animals that died from exposure to ethyl benzene vapors were an intense cerebral congestion, congestion and edema of the lungs, with signs of passive congestion throughout the abdominal viscera. The blood appeared much darker in color than normal and gave a cyanotic hue to all the organs.

The cerebral congestion was manifested by an intense injection and dilatation of the vessels. This injection was of both arteries and veins, including the finest radicles covering the surface of the

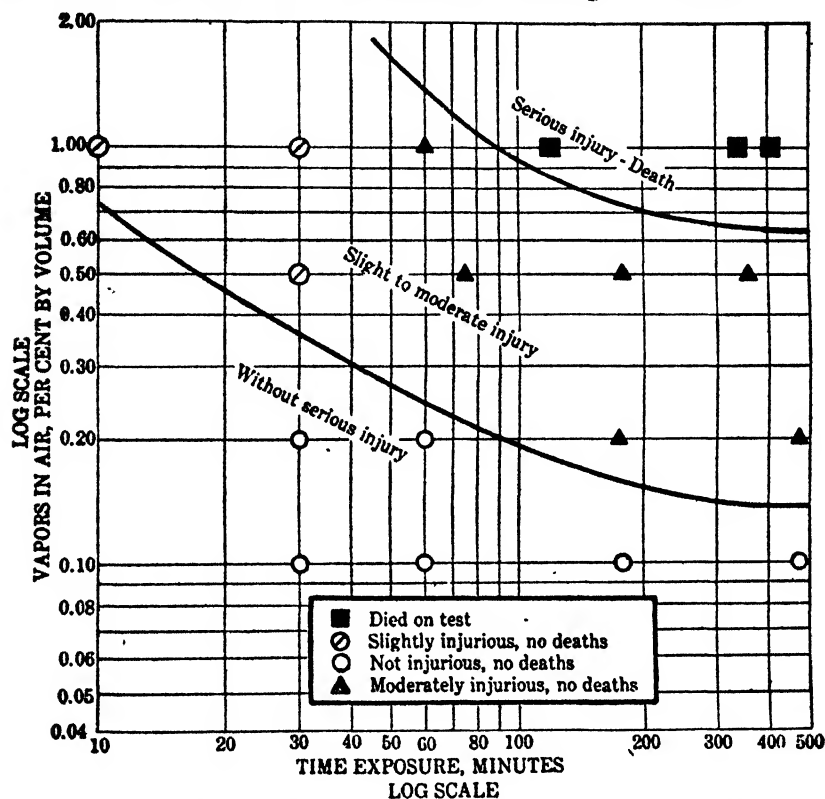


FIGURE 1.—Acute effects of exposure of guinea pigs to ethyl benzene vapor in air

brain. This picture was in marked contrast to the normal appearance of the surface of the cerebrum of the control guinea pigs, over which ordinarily only a few vessels are discernible.

The lungs were voluminous, deep pink to dark red in color, and bled freely on cut sections. A frothy exudate was expressible from the bronchioles and air sacs.

The abdominal viscera were normal in appearance with the exception of the cyanotic hue referred to previously and the fact that they appeared to bleed more freely than normally. The mesenteric vessels were apparently congested and dilated, standing out rather prominently on inspection of the abdomen.

The findings in the animals killed 4 days after exposure to a concentration that caused death to 2 members of the group (2 hours in 1 per cent) showed a persistence of the lung lesion with an apparent clearing up of the cerebral congestion. The remaining two animals of this group were killed seven days after exposure and were found to be negative for pathology.

The findings in the animals killed immediately after exposure to conditions that did not cause death (see fig. 1) but which caused some pathology (classified as moderate), were similar in type but milder in degree than the findings in the animals that died as a result of exposure to more severe conditions. The animals of those groups which were killed in four to eight days were apparently negative for any pathology except in three individuals. This shows an early clearing up of the lesions noted in those killed immediately after test. The exceptions occurred in groups which were exposed to 1 per cent for 2 hours and 0.2 per cent for three hours and 8 hours. Those pigs which were killed four days following exposure showed an atelectasis and emphysema of the lungs.

The groups exposed to conditions that produced only slight injury (a mild degree of same lesions previously described) did not show gross pathology four and eight days after exposure.

DISCUSSION OF PATHOLOGY

Gross pathological examination indicates that exposure to ethyl benzene causes damage to the central nervous system and to the lungs. The degree of damage increases with the severity of exposure. The change in the appearance of the vascular condition of the brain is marked and is a constant finding in the pigs that died on test or as a result of exposure. Hyperemia was found in all the groups that exhibited nervous symptoms (tremors, unsteadiness, etc.), and its extent apparently appeared to be related directly to the severity of the nervous phenomena. The hyperemia was not noted in the animals that were autopsied four and eight days after exposure, showing it to be not a permanent change but a temporary adjustment occurring during exposure.

Ethyl benzene is apparently capable of irritating the lungs to the point of producing a rather marked congestion and edema. In the cases of animals which did not die on test or soon after test, there was not much evidence that the lung irritation was severe enough to produce permanent injury. In only three instances were there any changes in the lungs after an interval of four days following exposure, and after eight days no animals showed resultant damage.

SUMMARY OF FATALITY AND RESPONSE

The fatality and summary of the response of guinea pigs exposed to ethyl benzene vapor in air during these tests are shown graphically

in Figure 1. The results for each group of animals are designated by a symbol which represents one of four different degrees of severity. With few exceptions the selected symbol describes the results obtained for at least half the individual animals, and in most cases it describes the results for the majority or all of the group (at least three and usually six animals) exposed to a given condition.

It should be noted that a logarithmic scale has been used for both the abscissæ and the ordinate of the graph. This mode of representation appeared desirable in view of the nature of the data and the significance of the results within certain ranges of conditions; for example, with long exposures a change in composition is of more importance than exact periods of exposure, whereas with short exposures it is desired to lay more emphasis on the time than on small changes in the composition of the atmosphere.

As noted from the legend for Figure 1, the four degrees of response are as follows:

1. Died on test.
2. Moderately injurious, no deaths.
3. Slightly injurious, no deaths.
4. Not injurious, no deaths.

In previous work,⁴ additional degrees of response were employed for a similar representation, as (a) "majority died in 24 hours after exposure"; (b) "majority died in one to eight days"; and (c) "moderate injury, few deaths." These additional degrees were not necessary in describing the work with ethyl benzene, because with only one exception the animals either died during the test or recovered afterwards.

In addition to representing the response of each group by symbols, the latter have been separated into three general zones of probable response, namely:

1. Serious injury, death.
2. Slight to moderate injury.
3. Without serious injury.

The nomenclature for these zones also deviates from those used in the report of the work with ethylene dichloride,⁵ the reason for the deviation being the same as that given for degrees of response or injury.

Several degrees of response that may be used for making comparison with data for other compounds which appear in the literature,^{6,7,8,9}

⁴ See footnote 3.

⁵ See footnote 3.

⁶ Sayers, R. R., Yant, W. P., Thomas, B. G. H., and Berger, L. B.: Physiological response attending exposure to vapors of methyl bromide, methyl chloride, ethyl bromide, and ethyl chloride. *Pub. Health Bull.* No. 185 (1929), 56 pp.

⁷ *International Critical Tables*, first edition, (1927) vol. 2, p. 318. Also see errata sheet, vol. 2.

⁸ Henderson, Yandell, and Haggard, Howard W.: Noxious gases. *American Chemical Society Monograph No. 35*, 1927. Chemical Catalogue Co., New York.

⁹ Fieldner, A. C., Katz, S. H., and Kinney, S. F.: Gas masks for gases met in fighting fires. U. S. Bureau of Mines Tech. Paper 248, 1921, 56 pp.

are given in Table 2. The table also includes symptoms accompanying the particular condition of exposure.

TABLE 2.—*Acute effects of exposure of guinea pigs to ethyl benzene vapor*

Effects of exposure after various periods of time	Concentration, per cent by volume
Kills in a few minutes.....	(1)
Marked symptoms in a few minutes, as vertigo, ataxia, unconsciousness.....	1.0
Dangerous to life in 30 to 60 minutes.....	1.0
Marked symptoms in 30 to 60 minutes, such as vertigo and unsteadiness.....	0.30.5
Maximum amount for 60 minutes without serious disturbances leading to death.....	.7
Maximum amount for 60 minutes without serious symptoms.....	.3
Slight symptoms after several hours or maximum amount without serious disturbances.....	10.2

¹ Not attained with air saturated with ethyl benzene at 20° C. In this work it was difficult to obtain concentrations above 1 per cent when working at 20° to 23° C.

RELATION OF SYMPTOMS TO FATALITY FOLLOWING EXPOSURE

There appeared to be no relation between the severity of symptoms and occurrence of death following exposure. Only one animal died after terminating exposure, and in this exceptional case death occurred in a few minutes following the test. Another animal of this same group of six died a few minutes before the termination, but the remaining four recovered and were killed in groups of two at the end of four and eight days, respectively. This does not indicate, however, that no damage existed in many of the pigs at the time of terminating the exposure. Many of those killed for autopsy immediately following test showed irritation of the lungs and congestion of the brain, but examination of other animals of the same groups made four to eight days later either showed a less degree of damage or were negative.

GENERAL DISCUSSION OF HEALTH HAZARDS AND WARNING PROPERTIES

A comparison of the results obtained for ethyl benzene with those reported in the literature for other common compounds (cited) indicates that the concentrations producing acute response are slightly less than those of gasoline and benzene when dealing with high concentrations (those causing death in a few minutes), and similar to those of gasoline and benzene in moderate and low concentrations. In the comparison with benzene, consideration is given to acute poisoning and not to chronic poisoning.

The potential health hazards from exposure to ethyl benzene are, however, lessened by its low vapor pressure at ordinary room temperatures. From vapor-pressure measurements it may be calculated that air saturated at room temperature will contain only 2 per cent ethyl benzene vapor by volume. In the experimental work described

in this report it was difficult to attain concentrations above 1 per cent, even when the air in a gas-tight chamber was recirculated for several hours over large surfaces wet with liquid ethyl benzene.

Health hazards from ethyl benzene are also mitigated by the warning it gives by irritation of the eyes, nose, and throat, and by warning symptoms, such as vertigo. These occur with conditions of exposure below those causing harm. Concentrations of vapor which cause injury in 30 to 60 minutes or less are intolerable to breathe.

It should be mentioned in connection with the discussion of warning properties that the action of low concentrations of ethyl benzene vapor differs to some extent from the action of low concentrations of the common irritants such as crotonaldehyde, allyl alcohol, acrolein, and others. The irritation produced by the latter compounds increases in severity with continued exposure, whereas the irritation produced by low concentrations of ethyl benzene decreases in perceptible severity with continued exposure. In this respect it acts similarly to odorants. The decrease in perceptible odor intensity of substances is attributed to olfactory fatigue or paralysis. The decrease in perceptible irritation produced by ethyl benzene may be due to local anæsthetic action.

SUMMARY AND CONCLUSIONS

The acute physiological response of guinea pigs to air containing ethyl benzene vapor was determined. The concentration of vapor and periods of exposure ranged from those which produced death to those which caused no apparent effect after several hours' exposure. The symptoms, gross pathology, and fatality are given, with a discussion of the potential health hazards.

(1) In the order of occurrence, the symptoms observed were eye and nose irritation, and apparent vertigo, static and motor ataxia, apparent unconsciousness, tremor of extremities, rapid jerky respiration, then shallow respiration, and finally slow, gasping respiration, followed by death. Exposure to 1 per cent caused all these symptoms and death in from two to three hours; 0.5 per cent caused all the symptoms up to and including tremor of extremities, but not respiratory disturbances and death during or after exposure of eight hours; 0.2 per cent caused all the symptoms up to and including ataxia in eight hours; 0.1 per cent did not cause symptoms other than eye irritation during eight hours.

(2) The gross pathological findings were congestion of the brain and congestion and edema of the lungs. These were most severe for the exposures to 1 per cent concentration of vapor until death ensued. A more moderate degree of the same type of pathology was found in the animals killed for autopsy immediately after exposure to 0.5 per cent and to a less degree after exposure to 0.2 per cent. Gross pathology was not found in animals exposed to 0.1 per cent for eight hours.

The degree of pathological changes increased in severity with increase in period of exposure to a given concentration of vapor. The pathology, however, decreased in severity during the 4-day period of observation following exposure and was absent in most cases after eight days.

(3) From the standpoint of acute poisoning, as produced by a single exposure, the relative toxicity of ethyl benzene appears to be slightly less than that of gasoline and benzene in the range of high concentrations, and practically the same as that of gasoline and benzene in moderate and low concentrations.

(4) Ethyl benzene vapors are irritating to the eyes and upper respiratory passages in concentrations below those causing serious response. Also, other warning symptoms, such as vertigo, occur in advance of serious response from a single exposure.

(5) The relatively low vapor pressure of ethyl benzene mitigates health hazards. Saturated air at 20° C. contains less than 2 per cent vapor.

(6) It was not possible at room temperatures to attain a concentration high enough to kill guinea pigs in a short time. Exposure of from 30 to 60 minutes to 1 per cent by volume produces marked symptoms and is dangerous to life following exposure; 0.7 per cent is the maximum amount for 60 minutes' exposure without the occurrence of death, and 0.3 per cent the maximum for 60 minutes without serious symptoms; 0.1 to 0.2 per cent is the maximum concentration for a single exposure of several hours.

ACKNOWLEDGMENTS

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OCCUPATIONAL MORTALITY AS INDICATED IN LIFE-INSURANCE RECORDS FOR THE YEARS 1915-1926

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So important is a recent investigation into occupational mortality in this country¹ that a special analysis of the published report has been made from the point of view of the industrial hygienist, and the results are given in this paper. The original investigation was made

¹ Joint Occupation Study. 1928. Compiled and published by the Actuarial Society of America and the Association of Life Insurance Medical Directors. New York: 1929. (Chairman of Joint Committee, Arthur Hunter, to whom grateful acknowledgment is made for review of the present paper.)

jointly by the Actuarial Society of America and the Association of Life Insurance Medical Directors, and the occupational data involved 1,300,000 entrants and 22,600 deaths, during the years 1915-1926, for 12 insurance companies. For certain occupations where the only known hazard was that of accident, the data were limited to the years 1920-1926. Since policies issued only during these periods were considered, it is evident that the cumulative effect of industrial hazards is more or less lost, and that the chief value of the material for the industrial hygienist will lie in its accurate picture of the accident hazard in specific occupations and in its measure of the effect of economic and social differences upon occupational mortality.

The paucity of data in regard to occupational mortality in this country makes this report of unique interest; but it also has a valuable advantage over official mortality data by occupation, in that the information as to the number exposed to risk and the number of deaths is based on the same source, namely, the individual policy. As is well known, the fundamental weakness of official occupational mortality data lies in the fact that the information as to the population depends on the occupational census and the information as to the deaths on the death certificates (with the doctor's statement as to occupation). In life-insurance data the deaths are checked off against the original policies. We know that, at the time of issuance of the policy, the man was employed in the occupation to which his death is actually assigned. Change of occupation will still offer a difficulty, but in view of the relatively short period covered in this study, this does not appear to be a particularly disturbing factor. In connection with this point it should be noted that when an individual transferred from one occupation to another, the exposure was terminated upon reduction in the rating either from a substandard to a standard policy or from a higher to a lower extra premium for hazardous occupation. Thus, generally speaking, there will not be in these data any great tendency to ascribe to a given occupation deaths actually due to the hazards of another occupation.

No policies were in operation for more than 12 years for the 1915-1926 data, or for more than 7 years for the 1920-1926 data. Of course, in many cases the workers had been employed for much longer periods in the specified occupations, but it is known that they were able to pass the usual life-insurance physical examination sometime during the period covered by the study. Therefore, one will not expect the data to be comparable with official mortality rates according to occupation, which reflect long exposure to specific industrial hazards. In connection with this point it is well to quote the following statement from the joint report:

Previous investigations in this subject have led actuaries to expect at least two distinct types of extra mortality—one with a fairly constant extra during the working years of life, and the other with increasing additional cost to middle life

or beyond. Locomotive firemen exemplify the first and saloon keepers the second type. In each of these classes the mortality ratio is affected by the duration of the experience. A less usual type is that where the extra mortality decreases with duration. In the present investigation the average duration is distinctly shorter than the average life of a policy on the books of the companies. Accordingly, for the first type of hazard, like locomotive firemen, those years are emphasized in which accidents are heaviest as a percentage of the mortality, and the ratios of actual to expected mortality are too high. For the second type, like saloon keepers, the emphasis is placed upon the period of lowest extra cost, and their ratios are understated in an experience of short duration.

The fact that all persons considered had passed life-insurance physical examinations is, of course, a point of great importance that the reader will not overlook.

The method of study limited the value of the material from the point of view of age, as data as to specific causes were secured for only two broad age groups, 15 to 39, 40 and over. For all causes, however, it has been possible to adjust the rates on the basis of a 5-year age group. The ages used in the report are those at time of issuance of the policy; but except for certain specific points this proved not to be an important factor.

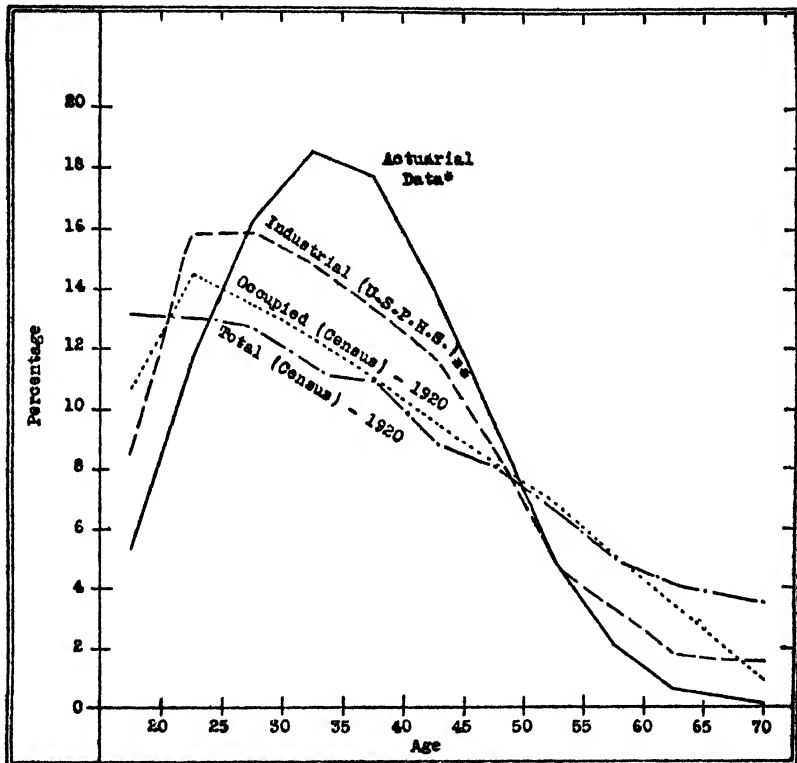
All 12 of the companies cooperating in the study gave all of their substandard data (i. e., where the premium asked was higher than normal), but two gave none of their standard data, and two gave but one-fifth of it coming within the required occupational classes. The correction devised in the course of that investigation has been included in the figures used in this paper without further comment. The effect of this correction was, obviously, to reduce the mortality rates in certain occupations.

The only policies included in the study were those under which life insurance would have been issued at the standard rate of premium if it had not been for the occupation. Thus, all policies were omitted which would have been classed as substandard because of build, race, residence, or medical impairment. Only ordinary business was included.

Both men and women were included, but in most occupational groups the men naturally predominated.

In the Joint Report the method has usually been to present the ratio of actual to expected deaths for a given number of years a policy had been in force and for a given age at issuance. The expected deaths were taken from tables of basic rates for 1915-1926 and for 1920-1926, these tables having been prepared on the basis of the investigation itself, rather than on the basis of previous standards. In this analysis, because of the familiarity of industrial hygienists with mortality rates, it has been found preferable to convert the ratios of actual to expected deaths into death rates. In doing so, it is of particular importance to note that these death rates are automatically adjusted both for age and for the length of time the policies had been in force.

The difference in the age distribution of this group of policyholders and that of the total population, however, is a point that must be kept in mind. Figure 1 presents the curves representing the percentage of persons in each age group, for the actuarial data, for a group of 10,000 industrial workers studied by the United States Public Health Service, for occupied males (1920 census), and for the total population of the country (15 years of age and over). It is noted that the life insurance group are concentrated in the ages from 25 to 45—ages



* Age at issuance of policy.

** Public Health Bulletin No. 162.

FIGURE 1.—Percentage of persons in each age group

when the risk of accidental death is especially high and the risk of death from most diseases very low.

It must be noted that the age distribution of the various occupations is by no means the same. For instance, farm laborers have 78 per cent under 30 years of age; janitors, 21 per cent. Table 1 presents the percentage in each of four broad age groups.¹ The occupations are ranked according to the percentage in the age group 15-29. Ages are those at entry, but this is of no moment from a relative point of view. The table is limited to occupations having 25,000 or more population.

¹ According to age at issuance—clearly an insignificant factor in the use of broad age groups.

TABLE 1.—*Proportion of persons in each age group by occupation¹ and age at entry*

Occupation	Percentage			
	15 to 29	30 to 39	40 to 49	50 and over
Farm laborers.....	78.5	14.1	5.8	1.5
Deliverymen for bakeries, etc., auto.....	71.6	22.0	5.4	1.1
Chauffeurs, truck (not delivery men).....	70.9	23.4	5.1	.7
Unskilled operatives in coal mines (underground).....	69.1	21.9	7.0	2.0
Auto and garage mechanics.....	67.1	26.9	5.3	.7
Skilled and semiskilled operatives in cotton mills.....	63.3	23.6	10.3	2.8
Delivery men for bakeries, etc., horse ²	63.0	26.0	8.5	2.5
Electricians not elsewhere classified.....	61.5	28.4	8.8	1.3
Compositors, electrotypers, linotypers, pressmen.....	60.0	25.4	11.2	3.4
Semiskilled operatives in clothing manufacture (not hats).....	59.4	28.6	10.1	1.9
Waiters in hotels, restaurants, and clubs (no liquor served).....	58.4	31.6	8.6	1.3
Machinists not elsewhere classified.....	57.1	29.0	11.0	3.0
Cranemen, derrick men, and hoist men.....	56.7	32.9	8.9	1.4
Semiskilled fur workers.....	56.4	30.4	10.9	2.2
Chauffeurs, private family.....	55.9	34.0	8.7	1.3
Mechanics not elsew here classified.....	55.8	30.7	10.5	3.0
Bakers.....	55.1	31.1	11.0	2.8
Draymen, teamsters, and expressmen.....	53.9	29.8	12.6	3.7
Rollers or roll hands in iron and steel mills.....	53.4	33.6	11.0	2.0
Oil and gas field foremen and miscellaneous operatives.....	50.6	34.7	12.1	2.6
Auto demonstrators.....	49.8	37.6	10.8	1.8
Semiskilled operatives in iron and steel works.....	47.6	32.0	15.9	4.5
Semiskilled operatives in car and railroad shops.....	47.2	32.6	15.9	4.4
Operatives in coal mines, underground ²	44.8	57.2	14.8	3.1
Drug and medicine dealers, including druggists, etc.....	43.0	35.3	16.9	4.8
Cooks, hotel and domestic.....	43.0	40.2	14.0	2.8
Tailors.....	42.1	36.8	16.6	4.4
Firemen, fire departments.....	40.3	39.1	16.0	4.5
Molders, founders, and casters of iron and steel.....	39.8	39.2	16.9	4.0
Painters and varnishers, house.....	39.1	37.9	18.1	4.0
Garage proprietors, not driving ²	38.5	44.0	14.6	3.0
Farmers.....	36.8	32.1	22.0	9.1
Carpenters.....	36.7	36.0	20.6	6.8
Policeimen, including motor cycle and State enlisted.....	31.0	42.8	20.4	5.7
Blacksmiths not elsewhere classified.....	30.5	39.9	21.8	7.8
Keepers of hotels, etc., not at bar.....	24.7	39.7	26.1	9.5
Undertakers.....	24.0	35.0	26.9	14.1
Officials and mining engineers in mines, and ore dressing and concentrating mills.....	21.2	43.8	26.5	8.5
Janitors and sextons.....	21.0	34.5	27.9	16.6
Other ² builders and building contractors in general construction.....	15.3	42.4	30.9	11.4
Inspecting and supervising builders and building contractors in general construction.....	13.3	43.1	30.7	12.9

¹ Occupations with 25,000 or more persons.² And not specified.

From the point of view of safety engineers and others interested in accident prevention in industry, the most valuable feature of the report is the possibility of obtaining from it the death rate from occupational accidents in a large number of specific occupations. A point previously mentioned must be stressed here: The data have the unique value of having both the population and death records obtained from a single source, so that the occupation ascribed to the man at the time of his death is very likely to have been the occupation at the time when the policy was taken out and, furthermore, the classification will be identical in both cases. The following table, therefore, which gives the death rates per 1,000 for occupational accidents in specific occupations, is a very concrete and relatively accurate picture of occupational accidents in this country since 1915. The rates are given without adjustment as the data were not in such a form that an adjustment by age could be made. The figure for all accidents is included at the right.

TABLE 2.—*Death rates from occupational accidents, by specific occupation*

Occupation	Death rate per 1,000	
	Occupational accidents	All accidents
Linemen and cable splicers in electric light and power plants	5.19	5.89
Oil and gas field rig builders and handlers of explosives	5.00	6.07
Skilled coal miners (underground)	4.85	5.75
Iron mine operatives (underground)	3.35	4.39
Other structural iron workers not elsewhere classified	2.89	4.16
Not specified operatives in coal mines (underground)	2.76	3.45
Freight (and not specified) train brakemen	2.72	3.74
Safety engineers and Government mine inspectors	2.63	2.79
Bratticemen, etc., in coal mines (underground)	2.47	2.93
Unskilled operatives in coal mines (underground)	2.18	2.66
Foremen in mines, etc. (underground)	1.87	2.31
Mine machinists and mechanics (underground)	1.68	1.94
Freight (and not specified) train conductors	1.66	2.27
Switchmen and flagmen	1.61	2.21
Telegraph and telephone foremen and linemen (not climbing poles or not specified)	1.58	2.12
Longshoremen, stevedores, and freight handlers	1.51	2.12
Constables, marshals, and sheriffs who arrest	1.47	1.58
Officers on ocean, Great Lakes, river and harbor craft	1.43	1.87
Forestry (not owners, engineers, or firemen)	1.41	2.06
Locomotive engineers	1.36	1.82
Copper mine operatives (underground)	1.35	2.84
Coal mine operatives (not underground)	1.30	1.80
Working window cleaners	1.29	2.00
Fishermen	1.26	2.66
Pole climbers in telephone and telegraph construction and operation	1.24	2.15
Mine stationary engineers and hoist men, etc. (not underground)	1.16	1.50
Mechanics in steel mills	1.11	1.97
Locomotive firemen	1.07	1.80
Surface operatives in mines other than coal	1.03	1.71
Quarry operatives (not handling explosives)	1.03	1.62
Car repairmen in roundhouse, track, and yard	.93	1.21
Electricians in electric light and power plants	.92	1.48
Officials and mining engineers in mines, and ore dressing and concentrating mills	.90	1.97
Policemen (including motor cycle and State enlisted)	.88	1.39
Certain other operatives in electric light and power plants	.84	1.54
Mine stationary engineers and hoist men, etc. (underground)	.79	1.25
Laborers in iron and steel works	.76	1.79
Yard foremen and inspectors	.76	1.17
Furnacemen, puddlers, etc., in iron and steel works	.74	1.23
Firemen (fire departments)	.74	1.40
Oil and gas field foremen and miscellaneous operatives	.72	1.48
Mine machinists and mechanics (not underground)	.68	1.25
Electricians not elsewhere classified	.67	1.16
Semiskilled operatives in certain chemical trades (acid, fertilizer, glue, white lead, etc.)	.65	1.30
Army officers	.65	1.05
Section and track laborers	.58	1.22
Workers in petroleum refineries	.54	1.44
Carriage riders, doggers, block setters, and other skilled operatives in saw and planing mills	.50	1.30
Cranemen, derrick men, and hoist men	.49	.90
Miscellaneous laborers	.48	1.70
Conductors and guards on street and interurban railroads	.46	.93
Auto delivery men for bakeries, etc.	.38	1.13
Truck chauffeurs (not delivery men)	.33	.77
Rollers and roll hands in iron and steel mills	.31	.84
Carpenters	.30	.85
Draymen, teamsters, and expressmen	.29	.89
Other and not specified builders and building contractors in general construction	.27	.85
Brick and stone masons	.26	.91
Semiskilled operatives in iron and steel works	.25	.76
Farmers	.23	.84
Auto and garage mechanics	.23	.93
Garage proprietors not driving or not specified	.21	.71
Farm laborers	.19	.92
Mechanics not elsewhere classified	.19	.74
Semiskilled operatives in car and railroad shops	.19	.71
Molders, foundries, and casters of iron and steel	.17	.73
Auto demonstrators	.17	.75
Machinists not elsewhere classified	.14	.76
Painters and varnishers (house)	.13	.62

It is quite evident that there are a large group of occupations in this country at the present time subject to a severe accident hazard. The relative risk in the different industrial groups is brought out

clearly in the table. The hazard is most marked among linemen and cable splicers in electric light and power plants, oil and gas field rig builders and handlers of explosives, skilled coal miners (underground), and iron-mine operatives (underground). But in running down the list one finds a large number of occupations where the occupational accidents must form an important part of the total mortality in the group.¹

Although it has been emphasized that data of this character are quite incapable of representing the mortality "with increasing additional cost to middle life or beyond," as it is put in the Joint Report, it was of great interest to determine whether differences in the mortality by occupation would be found to be expressive of economic or social levels. It was first necessary to eliminate accidental deaths, occupational or otherwise, from the comparison. This was a phase of the investigation which did not concern the Joint Committee, since they were interested in establishing ratios for the total mortality, on the basis of which the various occupations could be rated, but from the point of view of the industrial hygienist it is necessary to separate accidents from the other causes of death. The tables in the Joint Report were in such form that this could easily be done, and in Table 3 are given the death rates per 1,000 for each occupation with 25,000 or more persons, exclusive of accidents, occupational and nonoccupational. As before indicated, these rates are adjusted for age and for the number of years the policy had been in force, but it must be kept in mind that the age distribution to which the adjustment has been made is that of the life-insurance data as a whole, not of the general population of the United States. We would not expect, therefore, to find mortality rates nearly so high as those of the country generally, even aside from the question of selection due to the physical examination.

Interpretation of the relative rates in this table is quite difficult. High rates are found for unskilled and not specified operatives in coal mines (underground), keepers of hotels, semiskilled operatives in iron and steel works; and on the other hand, low rates were found for builders and contractors, electricians, and farmers. But a close inspection of the table indicates many inconsistencies, such as a high mortality level for undertakers and policemen, and a low mortality level for delivery men (auto), semiskilled fur workers, etc. The data do not appear to be capable of further analysis in regard to mortality. The failure to obtain any clear-cut distinctions in different economic or social levels may be due to an extent to the factor of selection present in all life-insurance data.

¹ Insufficient data are available as yet with respect to aviators. In the light of the accident mortality rates given in this table, however, it is of interest to quote the statement of Dr. L. I. Dublin that "the fatal accident rate for full-time pilots is now estimated at anywhere from 25 to 50 deaths per 1,000 annually."
* * * It has become clear that the hazard to passengers taking an occasional flight is negligible." ("The Job and the Life Span," *Harpers' Monthly Magazine*, January, 1930.)

TABLE 3.—Death rates, all causes except accidents, adjusted for age and number of years policy had been in force

Occupation	Death rate per 1,000	Average age at entry
Not specified operatives in coal mines (underground).....	5.46	36
Molders, founders, and casters of iron and steel.....	4.59	35
Cranemen, derrick men, and hoist men.....	4.48	31
Undertakers.....	4.40	42
Policemen, including motor cycle and State enlisted.....	4.39	38
Keepers of hotels, etc., not at bar.....	4.08	41
Officials and mining engineers in mines, and ore dressing and concentrating mills.....	3.91	40
Semiskilled operatives in iron and steel works.....	3.79	37
Unskilled operatives in coal mines (underground).....	3.76	30
Painters and varnishers, house.....	3.65	38
Draymen, teamsters, and expressmen.....	3.64	34
Mechanics not elsewhere classified.....	3.61	34
Waiters in hotels, restaurants, and clubs (no liquor served).....	3.49	30
Cooks, hotel and domestic.....	3.39	32
Janitors and sextons.....	3.34	44
Semiskilled operatives in car and railroad shops.....	3.33	36
Deliverymen for bakeries, etc., horse ¹	3.29	32
Skilled and semiskilled operatives in cotton mills.....	3.28	34
Drug and medicine dealers, including druggists, etc.....	3.25	37
Firemen, fire departments.....	3.25	36
Semiskilled operatives in clothing manufacture (not hats).....	3.25	33
Auto demonstrators.....	3.19	32
Machinists not elsewhere classified.....	3.11	34
Bakers.....	3.05	31
Garage proprietors, not driving ¹	3.02	35
Other and not specified builders and building contractors in general construction.....	3.01	42
Chauffeurs, private family.....	2.99	30
Compositors, electrotypers, linotypers, pressmen.....	2.98	33
Farm laborers.....	2.96	28
Oil and gas field foremen and miscellaneous operatives.....	2.93	32
Carpenters.....	2.93	38
Rollers and roll hands in iron and steel mills.....	2.87	31
Semiskilled fur workers.....	2.81	34
Chauffeurs, truck (not delivery men).....	2.81	30
Farmers.....	2.57	40
Electricians not elsewhere classified.....	2.42	31
Delivery men for bakeries, etc., auto.....	2.39	29
Auto and garage mechanics.....	2.27	28
Inspecting and supervising builders and building contractors in general construction.....	2.21	42

¹ And not specified.

In this connection, however, the following quotation in regard to laborers may be taken from the Joint Report (p. 52):

The unfavorable mortality among laborers constitutes a distinct feature of this report. In all cases accidents were significantly high as a cause of death. * * * Tuberculosis was most severe among those working indoors, in steel mills and foundries, and about normal among the laborers on railroad sections and on city streets. Pneumonia was above the average in every group, while the only other cause significantly serious was heart disease among the section hands.

That a certain difference associated with social or economic levels does exist was shown by a special analysis. In so far as possible specific occupations were combined into four groups and the adjusted death rates obtained for each group. These are given in Table 4.

TABLE 4.—*Death rates from all causes, exclusive of accidents,¹ adjusted for age and number of years policy had been in force; by social classes*

Occupational class	Death rate per 1,000
Professional and semiprofessional.....	3.27
Skilled.....	3.67
Semiskilled.....	4.53
Unskilled ²	4.77

¹ Accidents were deducted, but this had to be done on actual, not adjusted, basis.

² Farm laborers excluded.

The semiskilled and unskilled have definitely higher mortality rates than the professional (and semiprofessional) and the skilled.

The form in which the data were collected, although suitable for the purpose of the investigation itself, made any very detailed comparison as to causes of death impossible. Data were obtained for two broad age groups (15 to 39 and 40 and over). In preference to presenting a table of the rates by cause in the various occupations in these two age groups, there is given at this point a quotation from the Joint Report itself bearing on the causes of mortality in the various occupations:

Tuberculosis of the lungs stands high in 25 classes, and these are chiefly among the groups of unskilled labor and the lower social strata. This tendency has been emphasized by other investigators, particularly in connection with the report for England and Wales (1921-1923). Tuberculosis is three times as heavy at each age group among unskilled laborers as it is among the upper and middle classes of society. This consideration may explain the presence of high tuberculosis rates among farm laborers, general laborers, hucksters, and freight elevator tenders. Dust is an important factor in connection with tuberculosis. Examples of dust hazard are found among miners of copper, gold, or silver, stonecutters, workers in sawmills, chippers of metal and other skilled metal workers, molders in brass and bronze, carders and combers of cotton, and upholsterers. It has been suggested that alcoholism may have an influence on the tuberculosis rate, and this report shows a high mortality from tuberculosis among hotel keepers, waiters, and cooks in hotels, restaurants, and clubs, indicating that the suggestion has some foundation. The mortality from this cause was low among farmers and druggists.

Pneumonia appears of importance in 17 classes, the principal factor in which is exposure to abnormal temperatures. Thus, there are included seven underground mining classes, as well as rollers, roll hands, and laborers in steel mills. Inclement weather conditions may lead to high death rates from this cause among chauffeurs, and alcoholism among actors and saloon keepers. Social class seems to have little importance in regard to pneumonia.

Bright's disease or chronic nephritis was significant in 10 classes, and cerebral hemorrhage or apoplexy in 5 classes. It may be mentioned that four of the latter are in the same occupations as the former, namely, the group of underground coal miners, buyers and shippers of livestock, guards, watchmen, doorkeepers, and hotel keepers. Bright's disease was also important among section foremen, locomotive engineers, motormen, proprietors driving their own express wagons, and policemen. Heart disease—which some investigators have found to be correlated with both Bright's disease and cerebral hemorrhage—appears as a

significant cause in eight occupations of this investigation, and five of these have already been mentioned in reference to these two other causes of death. The remaining three employments were tailors, undertakers, and janitors.

Cancer as a cause of death has given rise to much speculation in recent years. Efforts have been made to show that it is most prevalent among those exposed to (a) coal-tar preparations, especially soft coal, (b) products of decomposition of living matter, (c) chemical fumes, (d) metallic dusts and fumes, (e) certain food and drink conditions, (f) alcoholism. The 10 employments showing a high death rate from cancer in the present research are railroad section foremen, janitors, junk and rag dealers, blacksmiths, workers in nonalcoholic beverages, hotel keepers, freight elevator tenders, tailors and semiskilled clothing workers and guards, watchmen and doorkeepers. Those last mentioned have had in many cases some other principal occupation before becoming guards, watchmen, and doorkeepers as a method of partial retirement from active service.

Appendicitis was prominent in the following classes: Farmers, mine officials, mine foremen underground, druggists, and policemen. In the case of farmers and those attached to mines, the difficulty of obtaining adequate medical and surgical attention for this acute disease has been suggested as a reason for the high death rate from appendicitis.

Cirrhosis of the liver was significantly high among bartenders and saloon keepers, and also among the large group of underground coal miners. It showed a low rate among farmers. This cause is well known to be closely related to alcoholism.

The purpose of the joint investigation of the Actuarial Society and the Association of Life Insurance Medical Directors was to furnish information on the basis of which the ratings of insurance companies for specific occupations could be revised. It is not possible in this review to summarize these recommended ratings. Reference is made therefore to the supplementary report of the Joint Committee based on this and other investigations.¹ The report gives suggested ratings for total insurance and also for accidental death benefits for a large number of specific occupations.

CURRENT STATE MORTALITY STATISTICS²

For about two years the United States Public Health Service has secured from State health departments current mortality data and each month has published death rates from certain important causes for as many States as could furnish the information to the Service. In this issue the tabulation of these current mortality rates has been completely revised and some explanation seems necessary. Inasmuch as in many instances the monthly rates are based on a rather small number of deaths, and in other instances the monthly variation in the death rate is not important, the present plan is to publish rates for each State for a period covering as many months of the current calendar year as are available, with comparative rates for the same

¹ Occupational Mortality Ratings. Compiled and published by the Actuarial Society of America and the Association of Life Insurance Medical Directors. New York, December, 1929.

² From the Office of Statistical Investigations, U. S. Public Health Service.

period in the three preceding calendar years if data are available for that many years. In the present report, figures are available for the 3-month period January to March for some of the States but only for the 2-month period January and February for other States.

At the top of the table are rates for the six States for which data for January to March, inclusive, are available for both 1930 and 1929. In addition to the rates for this 3-month period for the two years, there are given for these States the rates for January, February, and March of 1930. For the individual States, rates are not shown by months, but only the cumulative rate for the total 2 or 3 month period is given. (All rates are on an annual basis.)

As the year proceeds, it is planned to publish rates of this kind for a period including the months of the calendar year for which data are available. While in the first few months of the calendar year these cumulative rates are of little more significance than monthly rates, it is anticipated that as the year progresses this method of computing rates for the "year to date" for each of the States, with comparative rates for corresponding periods of preceding years, will give more useful information than the rates that have formerly been published for specific months without any summary of the "year-to-date" period.

The rates are computed from current and generally preliminary reports furnished by State departments of health. Because of (a) some lack of uniformity in the method of classifying deaths according to cause, (b) some delayed death certificates, and (c) various other reasons, these preliminary rates can not be expected to agree in all instances with final rates published by the Bureau of the Census, which are based on a complete review and retabulation of the individual death certificates from each State. The preliminary rates given in the accompanying table are intended to serve as a current index of mortality until final figures are issued by the Bureau of the Census. Populations used in computing the rates are estimates as of July 1, 1929. As soon as the new census populations are available for the States, it is expected to recompute not only the 1930 rates, but with the new estimates for the preceding years to correct the rates for the comparative years also. When new census populations are available by color, some additional data may be added by presenting rates for white and colored populations for States having large colored populations. If it seems worth while, these later tables may also include rates for the last month for which data are available as well as the summary rate for the "year-to-date" period.

Death rates from certain causes in stated periods of 1930, with comparative data for corresponding periods in preceding years

State	Period	Year	Rates per 100,000 population (annual basis)																									
			Rate per 1,000 live births	All causes (1-205)	Infant mortality	All except infant mortality	Typhoid fever (1)	Measles (7)	Scarlet fever (8)	Whooping cough (9)	Diphtheria (10)	Influenza (11)	Polymyositis (22)	Lethargic encephalitis (23)	Meningococcus meningitis (24)	Tuberculosis, all forms (31-37)	Cancer, all forms (43-49)	Diabetes (57)	Diseases of the nervous system (70-80)	Cerebral hemorrhage, apoplexy (74)	Diseases of the circulatory system (87-90)	Diseases of the heart (87-90)	Diseases of the respiratory system (97-107)	Pneumonia, all forms (100, 101)	Diseases of the digestive system (108-127)	Diarrhea and enteritis under 2 years (113)	Nephritis (128, 129)	Fuerperal state (143-180)
* 6 States	Jan. to Mar.	1930	12.2	(1)	(1)	1.7	4.2	2.0	6.9	8.8	2.45	3.0	1.4	6.8	96.9	70.2	17.5	115.5	79.5	521.5	1,094.8	815.1	612.7	64.0	7.8	100.7	14.8	3.8
	Jan.	1929	15.0	(1)	(1)	1.6	8.8	2.0	8.9	8.8	2.29	1.1	1.3	2.8	106.6	72.2	16.3	120.7	79.7	728.1	216.4	1,027.7	71.5	10.5	101.6	13.5	10.3	
	Feb.	1930	11.6	(1)	(1)	1.9	3.0	2.1	6.0	9.3	45.7	7.7	1.9	7.0	90.6	70.5	17.5	110.7	72.4	206.5	518.3	814.4	113.0	7.7	94.0	11.0	12.9	
	Mar.	1930	12.7	(1)	(1)	1.9	4.6	1.9	6.7	9.1	48.1	8.5	1.9	7.5	100.1	70.2	18.0	110.7	79.0	221.7	720.1	816.7	67.4	7.8	102.6	12.2	12.9	
	Jan. to Mar.	1930	12.3	(1)	(1)	1.5	5.1	1.9	8.0	6.3	42.3	8.5	.9	7.5	109.0	71.7	18.3	121.1	86.9	217.4	1,097.6	812.6	62.7	9.1	105.8	10.5	10.3	
Alabama	Jan. to Mar.	1930	11.7	85	47	2.2	3.9	2.0	8.6	5.6	68.1	1.3	.6	2.3	33.9	46.4	10.3	99.2	62.5	150.2	1,138.0	1,123.1	54.7	7.7	96.8	18.7	10.8	
	Jan.	1929	15.2	100	68	1.7	3.9	1.7	9.1	6.4	382.6	1.1	1.7	2.8	106.6	72.2	16.3	120.7	79.7	728.1	216.4	1,027.7	71.5	10.5	101.6	13.5	10.8	
	Feb.	1930	10.6	63	33	1.7	3.9	2.0	8.6	5.6	68.1	1.3	.6	2.3	33.9	46.4	10.3	99.2	62.5	150.2	1,138.0	1,123.1	54.7	7.7	96.8	18.7	10.8	
	Mar.	1930	12.5	92	50	1.7	3.9	2.0	8.6	5.6	68.1	1.3	.6	2.3	33.9	46.4	10.3	99.2	62.5	150.2	1,138.0	1,123.1	54.7	7.7	96.8	18.7	10.8	
	Jan. to Mar.	1927	9.6	62	33	1.7	3.9	2.0	8.6	5.6	68.1	1.3	.6	2.3	33.9	46.4	10.3	99.2	62.5	150.2	1,138.0	1,123.1	54.7	7.7	96.8	18.7	10.8	
Arizona	do.	1930	14.6	(1)	(1)	4.1	8.5	2.5	5.0	8.3	25.7	8.8	.8	29.0	326.8	46.4	7.5	118.6	55.6	146.8	1,239.4	1,266.2	221.4	97.0	38.2	52.2	10.8	
	do.	1929	13.7	141	110	7.5	(7)	9.1	1.7	25.7	8.8	.8	.8	15.8	310.2	48.1	(7)	81.3	37.3	136.8	1,121.1	1,165.0	129.4	165.0	100.0	42.3	10.8	
	Jan.	1930	16.1	58	29	1.5	3.8	4.5	2.0	7.5	28.4	1.0	1.3	6.3	126.3	46.2	31.5	161.1	241.0	935.1	1,179.9	1,183.3	95.4	12.3	110.2	7.5	10.8	
	Jan.	1929	16.4	66	31	1.0	4.8	1.8	6.8	4.8	89.1	1.0	3.3	2.0	133.2	47.8	28.3	157.5	102.6	530.2	1,197.7	1,201.3	84.0	9.3	116.3	9.8	10.8	
	Jan. to Feb.	1928	14.8	63	34	1.8	8.1	1.3	1.6	10.4	23.1	3.1	.8	2.9	135.5	129.8	23.3	158.6	93.6	872.3	1,315.0	1,347.3	74.2	8.0	114.3	9.1	10.8	
Connecticut	Jan. to Feb.	1930	11.9	80	(1)	.4	(7)	3.6	4.0	5.5	40.2	.7	1.8	1.1	55.4	115.9	20.4	(7)	(7)	217.5	(7)	149.4	(7)	8.4	83.1	(7)	10.8	
	Jan.	1929	14.7	95	(1)	.4	4.0	1.1	5.1	3.6	161.0	.7	1.8	1.1	68.9	102.4	18.9	(7)	(7)	250.6	(7)	225.7	(7)	9.8	87.1	10.9	10.8	
	Feb.	1930	11.3	67	(1)	1.8	2.6	.7	4.8	10.6	26.0	1.1	2.2	.4	65.9	105.4	(7)	(7)	(7)	175.3	(7)	138.0	(7)	7.0	(7)	8.8	10.8	
	Mar.	1930	11.4	75	(1)	1.1	2.3	.8	5.7	6.4	30.6	.8	.8	7.4	104.0	(7)	(7)	(7)	(7)	198.3	(7)	119.9	(7)	10.2	(7)	12.1	10.8	
	Jan. to Mar.	1927	11.4	75	(1)	1.1	2.3	.8	5.7	6.4	30.6	.8	.8	7.4	104.0	(7)	(7)	(7)	(7)	198.3	(7)	119.9	(7)	10.2	(7)	12.1	10.8	
District of Columbia	Jan. to Mar.	1930	13.9	69	35	(7)	(7)	3.2	3.6	5.0	10.1	(7)	.7	7.1	110.3	109.3	28.8	131.6	96.4	454.5	5,308.4	4,171.1	149.6	72.6	2.21	65.4	18.0	
	Jan.	1929	17.2	83	45	(7)	(7)	3.2	3.6	10.8	61.1	(7)	(7)	2.3	122.2	115.8	28.0	143.8	93.0	743.8	7,968.7	7,274.0	247.4	92.0	5.01	77.6	12.9	10.8
	Feb.	1930	14.3	83	45	(7)	(7)	3.2	3.6	10.8	61.1	(7)	(7)	2.3	122.2	115.8	28.0	143.8	93.0	743.8	7,968.7	7,274.0	247.4	92.0	5.01	77.6	12.9	10.8
	Mar.	1930	16.0	(1)	(1)	1.5	.7	1.5	2.9	7.3	21.1	(7)	(7)	7.1	106.4	107.8	18.8	114.7	210.7	833.2	3,295.1	3,217.9	185.8	76.5	9.51	45.2	4.2	
	Jan. to Mar.	1927	16.0	(1)	(1)	1.5	.7	1.8	3.0	7.5	50.0	(7)	3.0	8.1	118.7	109.7	18.8	117.7	212.6	2,341.7	7,302.2	7,232.8	205.0	81.1	3.01	79.5	13.0	

* No deaths.

† Not available.

* Alabama, Arizona, District of Columbia, New Jersey, Tennessee, and Virginia.

Death rates from certain causes in stated periods of 1930, with comparative data for corresponding periods in preceding years—Continued

State	Period	Year	Rates per 100,000 population (annual basis)																																				
			All causes (1-205)	Rate per 1,000 live births		Infant mortality													Diseases of the nervous system (70-86)								Diseases of the circulatory system (87-96)				Diseases of the respiratory system (97-107)				Pneumonia, all forms (100, 101)	Diseases of the digestive system (109-127)	Diarrhea and enteritis under 2 years (113)	Nephritis (128, 129)	Puerperal state (143-150)
				Rate per 1,000 live births	All except malformations and early infancy	Typhoid fever (1)	Meningitis (7)	Scarlet fever (8)	Whooping cough (9)	Diphtheria (10)	Influenza (11)	Polymyositis (22)	Lethargic encephalitis (23)	Meningococcus meningitis (24)	Tuberculosis, all forms (31-37)	Cancer, all forms (43-49)	Diabetes (57)	Diseases of the nervous system (70-86)	Cerebral hemorrhage, apoplexy (74)	Diseases of the circulatory system (87-96)	Diseases of the respiratory system (97-107)	Diseases of the heart (87-90)																	
Georgia	Jan. to Feb.	1930	9.0	0.7	2.5	1.1	4.0	5.5	49.3	1.8	()	3	58.3	37.5	11.9	9.7	65.1	120.5	107.7	110.1	103.7	44.4	5.1	103.4	15.7	143-150													
Hawaii	Jan. to Feb.	1929	15.0	2.2	1.1	1.5	4.0	7.5	49.3	1.8	()	()	63.7	35.3	13.5	35.7	64.1	112.8	112.8	103.7	183.8	()	2.2	153.2	218.2														
Idaho	Jan. to Feb.	1930	11.8	1.7	2.2	1.7	3.7	12.1	22.5	19.0	()	5.2	96.8	55.3	15.6	51.8	65.6	127.6	141.7	()	143.4	181.4	117.5	()	()	()													
	Jan. to Mar.	1929	10.4	1.7	1.8	3.5	3.7	7.1	26.6	()	14.2	96.8	70.9	8.9	65.6	()	127.6	()	141.7	()	193.8	205.6	6125.9	()	()														
	Jan. to Mar.	1928	12.6	2.5	2.5	3.5	3.5	12.2	15.7	()	5.2	132.8	76.9	3.2	45.4	()	127.6	()	127.6	()	183.8	183.8	5101.4	()	()														
	Jan. to Mar.	1930	()	0.7	1.5	2.0	2.0	7.7	2.9	7.3	()	10.2	27.9	46.5	9.6	86.5	50.9	157.7	143.9	116.3	96.7	42.9	1.5	28.3	8.7														
Illinois	Jan. to Feb.	1930	()	1.1	1.3	8.0	2.9	10.9	24.8	1.1	8	3.8	62.1	()	()	()	()	()	()	()	()	()	()	()	()	()													
	Jan. to Feb.	1929	()	1.5	3.3	5.2	2.6	8.0	43.7	()	1.2	5.8	76.3	()	()	()	()	()	()	()	()	()	()	()	()	()													
	Jan. to Feb.	1928	()	1.6	5.5	2.8	3.7	10.8	()	()	2.6	71.3	()	()	()	()	()	()	()	()	()	()	()	()	()	()													
	Jan. to Feb.	1927	()	1.3	7.3	4.6	3.9	8.6	()	()	1.5	83.3	()	()	()	()	()	()	()	()	()	()	()	()	()	()													
Indiana	Jan. to Mar.	1930	()	46	1.3	1.8	3.3	4.7	5.3	31.0	3	17.5	73.3	71.8	19.1	()	123.1	()	201.8	()	131.7	()	6.8	90.1	111.5														
	Jan. to Mar.	1929	15.0	8.3	8.6	1.5	6.5	5.1	73.7	4	()	8	74.8	65.8	17.1	()	127.3	()	223.2	()	191.8	()	8.9	88.4	104.3														
	Jan. to Mar.	1928	12.6	66	1.8	1.8	3.0	4.7	6.8	54.2	()	()	80.2	98.9	()	122.5	()	182.6	()	136.9	()	9.0	81.0	104.3	9.3														
	Jan. to Mar.	1927	12.2	68	3.5	3.1	4.8	7.7	7.5	45.8	()	()	80.2	98.9	()	90.9	()	175.0	()	118.3	()	7.7	90.1	115.9	7.4														
Iowa	Jan. to Feb.	1930	11.6	54	1.0	7.4	6.6	4.0	2.5	57.5	3	2.0	37.4	109.7	24.9	146.3	98.2	254.2	231.1	1150.1	137.9	70.7	3.1	47.1	10.4														
	Jan. to Feb.	1929	13.4	47	1.3	3.3	4.3	()	212.9	1.0	2.0	3.1	36.4	106.1	23.9	156.0	113.5	590.0	826.0	144.8	127.0	55.2	3.6	55.2	12.0														
	Jan. to Feb.	1928	10.2	63	2.0	2.3	1.5	5.0	34.2	1.5	1.3	1.3	32.2	95.0	19.8	183.5	402.8	248.1	115.6	61.0	101.2	62.6	3.	58.8	9.3														
	Jan. to Feb.	1926	14.4	69	38	2.0	7.1	5.5	5.2	7.9	12.7	1.0	2.5	112.4	108.4	24.1	160.0	121.5	321.3	278.3	203.9	183.1	69.7	9.9	170.9	7.4													
Maryland	Jan. to Mar.	1930	11.8	36	5.4	4.0	3.7	10.3	23.7	()	2.1	15.2	60.8	61.5	18.7	132.4	100.9	238.4	229.4	135.8	113.0	77.4	8.2	68.9	16.3														
	Jan. to Feb.	1929	14.7	54	1.2	1.2	4.0	7.3	10.3	108.0	8	1.3	34.4	96.1	23.7	133.7	108.8	305.4	266.4	202.9	178.9	86.2	13.0	77.3	12.7														
	do.	1930	10.0	46	19	1.6	2.2	3.1	2.0	20.8	()	2.0	3.1	46	41.0	8.1	82.5	195.5	185.5	103.9	101.3	59.9	6.1	49.6	10.1														
	do.	1929	11.8	38	2.4	4.0	4.3	7.9	2.1	48.9	4	2.9	50.3	100.9	24.2	106.3	78.3	327.7	398.5	123.8	118.0	60.1	3.6	64.6	9.9														
Minnesota	Jan. to Mar.	1928	9.6	()	4	()	3.1	1.3	2.9	22.0	2	1.1	7	58.0	104.0	19.7	()	166.1	()	()	78.3	()	64.5	9.3	64.5	9.3													
	do.	1930	13.5	()	4.5	2.4	3	7.9	9.3	80.1	1.4	()	11.1	87.0	47.7	13.1	()	125.7	()	132.5	()	7.6	108.0	23.5	7.6														
	do.	1929	18.8	()	4.8	8.6	()	10.7	6.2	53.4	7	()	1.0	78.4	46.9	9.0	()	109.2	()	131.3	()	3.1	108.5	51.3	3.1														
	Jan. to Mar.	1930	9.2	()	1.5	4.4	7	7	7	27.3	()	2.2	11.1	59.8	46.6	17.0	100.5	63.6	165.5	153.7	140.4	126.3	65.7	4.4	65.7	11.2													

COURT DECISION RELATING TO PUBLIC HEALTH

Pneumonia held not compensable under workmen's compensation act.—(Connecticut Supreme Court of Errors; *Galuzzo v. State et al.*, 149 A. 778; decided Mar. 31, 1930.) A proceeding was brought under the workmen's compensation act by the plaintiff to recover for the death of her husband who had been an employee of the State highway department. The deceased had lost only two or three days' time during his five years' employment with the department. On the day when he was taken ill he was engaged in shoveling sand into a truck from a sand pit and then in shoveling the sand from the truck on to the road at different points. The day was clear and the mean temperature was a few degrees below freezing. On reporting for work in the morning nothing abnormal or unusual in his condition was noticed, but in the afternoon he was obviously ill. The next morning a physician found "a beginning pneumonia" which progressed and caused the employee's death a week later. The claimant's contention was that the pneumonia was caused by the exposure to which the deceased was subjected while working on his job the last day, and, therefore, arose out of and in the course of the employment.

Under the law the claimant's right to compensation rested upon proof that the deceased suffered a "personal injury" and this was required to be "only accidental injury which may be definitely located as to the time when and the place where the accident occurred." It was also provided that "a personal injury shall not be deemed to arise out of the employment unless causally traceable to the employment other than through weakened resistance or lowered vitality." The supreme court sustained the action of the compensation commissioner and the trial court in denying compensation saying:

It appears quite conclusively that the pneumonia was not a contemporaneous result of the exposure, and that the only contemporaneous result which could have been caused was a weakened resistance and a lowered vitality.

DEATHS DURING WEEK ENDED MAY 17, 1930

Summary of information received by telegraph from industrial insurance companies for the week ended May 17, 1930, and corresponding week of 1929. (From the Weekly Health Index, May 21, 1930, issued by the Bureau of the Census, Department of Commerce)

	Week ended May 17, 1930	Corresponding week, 1929
Policies in force.....	75, 793, 257	74, 154, 288
Number of death claims.....	15, 282	14, 371
Death claims per 1,000 policies in force, annual rate..	10. 5	10. 1

Deaths from all causes in certain large cities of the United States during the week ended May 17, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index, May 21, 1930, issued by the Bureau of the Census, Department of Commerce)

City	Week ended May 17, 1930		Annual death rate per 1,000, corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended May 17, 1930 ¹
	Total deaths	Death rate ¹		Week ended May 17, 1930	Corresponding week, 1929	
Total (65 cities).....	6,994	12.3	13.3	649	701	56
Akron.....	39	—	—	5	3	46
Albany.....	35	15.2	16.5	4	1	87
Atlanta.....	74	15.1	17.6	8	9	85
White.....	35	—	—	5	2	169
Colored.....	39	(⁵)	(⁵)	3	7	48
Baltimore.....	224	14.1	14.4	11	23	37
White.....	165	—	—	9	17	39
Colored.....	59	(⁵)	(⁵)	2	6	32
Birmingham.....	69	16.2	17.1	8	7	75
White.....	36	—	—	2	3	31
Colored.....	33	(⁵)	(⁵)	6	4	142
Boston.....	223	14.5	13.2	27	24	76
Bridgeport.....	28	—	—	0	3	0
Buffalo.....	151	14.2	20.7	14	14	62
Cambridge.....	23	10.4	9.5	1	4	19
Camden.....	34	13.1	12.3	5	6	91
Canton.....	20	8.9	12.5	2	4	50
Chicago.....	577	9.5	12.8	44	68	39
Cincinnati.....	113	—	—	8	7	47
Cleveland.....	197	10.2	17.2	27	19	81
Columbus.....	80	14.0	12.7	7	5	68
Dallas.....	55	13.2	12.4	9	3	—
White.....	39	—	—	8	1	—
Colored.....	16	(⁵)	(⁵)	1	2	—
Dayton.....	35	9.9	13.3	4	6	59
Denver.....	82	14.5	16.1	12	7	125
Des Moines.....	35	12.0	10.6	5	0	87
Detroit.....	270	10.4	13.3	27	40	42
Duluth.....	31	13.8	13.8	2	5	54
El Paso.....	40	17.7	14.6	12	6	—
Erie.....	28	—	—	2	4	43
Fall River.....	34	13.2	12.0	6	3	137
Flint.....	27	9.5	11.2	5	4	58
Fort Worth.....	31	9.5	9.8	2	4	—
White.....	23	—	—	1	4	—
Colored.....	8	(⁵)	(⁵)	1	0	—
Grand Rapids.....	31	9.8	8.6	6	3	81
Houston.....	66	—	8.6	9	4	—
White.....	48	—	—	8	1	—
Colored.....	18	(⁵)	(⁵)	1	3	—
Indianapolis.....	71	9.7	13.6	5	9	37
White.....	64	—	—	4	8	35
Colored.....	7	(⁵)	(⁵)	1	1	64
Jersey City.....	73	11.7	11.7	6	5	62
Kansas City, Kans.....	32	14.1	14.1	0	2	0
White.....	20	—	—	0	2	0
Colored.....	6	(⁵)	(⁵)	0	0	0
Kansas City, Mo.....	98	13.1	16.9	6	7	47
Knoxville.....	35	17.8	12.4	3	0	70
White.....	28	—	—	3	0	78
Colored.....	7	(⁵)	(⁵)	0	0	0
Los Angeles.....	267	—	—	23	20	70
Louisville.....	77	12.2	13.8	14	7	122
White.....	55	—	—	6	7	59
Colored.....	22	(⁵)	(⁵)	8	0	579
Lowell.....	28	—	—	4	2	95
Lynn.....	16	7.9	10.9	2	3	51
Memphis.....	88	24.1	15.1	11	6	131
White.....	44	—	—	6	3	110
Colored.....	44	(⁵)	(⁵)	5	3	169
Milwaukee.....	131	12.6	11.4	13	15	65
Minneapolis.....	102	11.7	11.0	15	11	97
Nashville.....	44	16.4	20.9	8	7	124
White.....	28	—	—	5	6	103
Colored.....	16	(⁵)	(⁵)	3	1	190

See footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended May 17, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929—Continued

City	Week ended May 17, 1930		Annual death rate per 1,000, corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended May 17 1930
	Total deaths	Death rate		Week ended May 17, 1930	Corresponding week, 1929	
New Bedford.....	15			3	4	77
New Haven.....	44	12.2	11.4	2	4	39
New Orleans.....	164	19.9	14.8	13	17	75
White.....	88			9	7	80
Colored.....	76	(¹)	(¹)	4	10	67
New York.....	1,438	12.5	13.1	137	150	58
Bronx Borough.....	206	11.3	10.0	20	18	47
Brooklyn Borough.....	508	11.5	11.4	53	49	56
Manhattan Borough.....	534	15.9	18.7	49	64	80
Queens Borough.....	163	9.3	9.0	14	16	41
Richmond Borough.....	37	12.8	16.3	1	3	19
Newark, N. J.....	91	10.0	12.1	5	15	26
Oakland.....	61	11.6	11.0	3	3	36
Oklahoma City.....	34			3	0	59
Omaha.....	44	10.3	7.5	3	1	34
Paterson.....	47	16.9	11.6	2	5	35
Philadelphia.....	507	12.8	12.6	39	40	58
Pittsburgh.....	165	12.8	12.0	15	16	55
Portland, Oreg.....	76			2	5	25
Providence.....	63	11.5	10.7	6	7	55
Richmond.....	60	16.1	14.8	4	6	59
White.....	40			2	3	45
Colored.....	20	(¹)	(¹)	2	3	87
Rochester.....	70	11.1	14.6	4	8	35
St. Louis.....	166	10.2	13.5	11	12	36
St. Paul.....	47			1	7	10
Salt Lake City ⁴	32	12.1	17.0	3	3	47
San Antonio.....	78	18.6	17.9	13	28	-----
San Diego.....	41			4	9	84
San Francisco.....	173	15.4	15.9	7	3	48
Schenectady.....	20	11.2	7.3	2	1	62
Seattle.....	79	10.7	9.8	0	1	0
Somerville.....	17	8.6	11.7	2	1	65
Spokane.....	30	14.3	10.5	1	2	26
Springfield, Mass.....	34	11.8	10.4	2	3	32
Syracuse.....	39	10.2	13.3	1	3	12
Tacoma.....	28	13.2	11.3	3	2	77
Toledo.....	66	11.0	11.3	9	5	82
Trenton.....	41	15.4	12.4	3	3	56
Utica.....	31	15.5	15.0	4	3	114
Washington, D. C.....	132	12.5	13.0	9	8	52
White.....	86			3	6	28
Colored.....	46	(¹)	(¹)	6	2	108
Waterbury.....	24			4	2	102
Wilmington, Del.....	28	11.4	13.0	2	4	45
Worcester.....	33	8.7	11.3	1	4	13
Yonkers.....	20	8.6	8.2	5	2	119
Youngstown.....	40	12.0	12.9	7	5	110

¹ Annual rate per 1,000 population.

² Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.

³ Data for 73 cities.

⁴ Deaths for week ended Friday.

⁵ In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended May 17, 1930, and May 18, 1929

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended May 17, 1930, and May 18, 1929

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended May 17, 1930	Week ended May 18, 1929	Week ended May 17, 1930	Week ended May 18, 1929	Week ended May 17, 1930	Week ended May 18, 1929	Week ended May 17, 1930	Week ended May 18, 1929
New England States:								
Maine.....	4	5	-----	6	77	127	2	1
New Hampshire.....	4	1	4	2	2	66	0	1
Vermont.....	-----	1	-----	-----	39	4	0	0
Massachusetts.....	69	64	4	5	1,474	581	7	4
Rhode Island.....	3	7	-----	-----	2	62	0	0
Connecticut.....	21	15	-----	10	75	253	4	1
Middle Atlantic States:								
New York.....	120	281	116	117	2,851	1,001	19	37
New Jersey.....	83	128	10	4	1,483	295	4	10
Pennsylvania.....	106	126	-----	-----	1,580	1,933	18	9
East North Central States:								
Ohio.....	23	24	7	11	713	892	3	5
Indiana.....	17	14	-----	-----	137	609	5	1
Illinois.....	117	168	40	27	578	1,882	8	19
Michigan.....	63	83	4	-----	2,243	1,198	24	101
Wisconsin.....	14	29	10	31	900	1,657	2	6
West North Central States:								
Minnesota.....	5	10	-----	-----	169	640	5	6
Iowa.....	4	5	-----	-----	478	80	4	1
Missouri.....	30	58	6	7	90	210	12	19
North Dakota.....	2	8	-----	-----	17	205	3	1
South Dakota.....	3	2	-----	-----	107	20	0	1
Nebraska.....	9	12	-----	-----	168	248	0	0
Kansas.....	13	10	-----	-----	776	678	1	4
South Atlantic States:								
Delaware.....	1	1	-----	-----	12	17	0	0
Maryland.....	25	18	17	14	102	39	1	1
District of Columbia.....	5	7	-----	2	47	32	0	0
West Virginia.....	6	11	14	6	97	372	2	0
North Carolina.....	18	12	15	-----	60	28	1	5
South Carolina.....	6	15	245	225	-----	7	2	0
Georgia.....	-----	14	8	20	190	40	0	5
Florida.....	7	7	2	2	247	89	0	1
East South Central States:								
Kentucky.....	-----	-----	-----	-----	21	36	2	3
Tennessee.....	2	6	21	13	117	45	14	2
Alabama.....	4	6	9	21	112	49	2	1
Mississippi.....	-----	5	-----	-----	-----	-----	5	0

¹ New York City only.

¹ Week ended Friday.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended May 17, 1930, and May 18, 1929—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended May 17, 1930	Week ended May 18, 1929	Week ended May 17, 1930	Week ended May 18, 1929	Week ended May 17, 1930	Week ended May 18, 1929	Week ended May 17, 1930	Week ended May 18, 1929
West South Central States:								
Arkansas.....	4	—	23	43	52	16	2	2
Louisiana.....	11	25	16	12	23	77	2	1
Oklahoma ¹	6	0	35	24	152	52	2	2
Texas.....	27	19	40	7	259	156	1	1
Mountain States:								
Montana.....	2	1	—	1	10	81	1	1
Idaho.....	2	—	—	15	12	1	1	1
Wyoming.....	—	—	—	—	46	56	0	0
Colorado.....	5	8	—	1	641	17	0	3
New Mexico.....	1	5	—	—	43	9	3	7
Arizona.....	4	1	7	—	152	5	3	4
Utah ²	—	—	—	4	311	3	2	7
Pacific States:								
Washington.....	1	4	—	—	579	196	3	9
Oregon.....	6	2	13	16	97	225	0	0
California.....	45	49	30	57	2,033	124	5	19
Division and State	Polioomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended May 17, 1930	Week ended May 18, 1929	Week ended May 17, 1930	Week ended May 18, 1929	Week ended May 17, 1930	Week ended May 18, 1929	Week ended May 17, 1930	Week ended May 18, 1929
New England States:								
Maine.....	0	0	26	40	0	0	12	4
New Hampshire.....	0	0	13	15	0	1	0	1
Vermont.....	0	0	4	14	1	9	0	0
Massachusetts.....	4	2	214	215	0	7	2	7
Rhode Island.....	0	1	20	18	0	0	8	0
Connecticut.....	1	0	71	61	0	9	0	1
Middle Atlantic States:								
New York.....	1	3	442	385	11	1	18	14
New Jersey.....	1	0	183	148	0	0	3	3
Pennsylvania.....	0	2	421	379	1	0	13	30
East North Central States:								
Ohio.....	1	0	166	226	79	65	6	5
Indiana.....	0	0	123	257	195	79	8	11
Illinois.....	0	1	369	422	161	90	17	10
Michigan.....	0	1	283	503	71	60	2	2
Wisconsin.....	0	0	165	153	13	13	0	3
West North Central States:								
Minnesota.....	0	0	111	100	6	3	0	4
Iowa.....	0	0	64	108	124	39	1	0
Missouri.....	0	0	98	75	37	22	9	6
North Dakota.....	0	0	28	29	36	12	1	1
South Dakota.....	0	2	12	28	58	30	0	0
Nebraska.....	0	0	35	111	47	25	0	2
Kansas.....	0	0	73	139	40	50	7	3
South Atlantic States:								
Delaware.....	0	0	12	3	0	0	0	0
Maryland ¹	0	1	70	124	0	0	7	6
District of Columbia.....	0	0	9	16	0	0	2	0
West Virginia.....	0	0	22	11	27	22	11	18
North Carolina.....	1	3	24	28	20	18	9	3
South Carolina.....	2	2	3	5	2	0	17	15
Georgia.....	0	0	15	18	0	0	8	17
Florida.....	0	0	4	6	0	0	2	4
East South Central States:								
Kentucky.....	0	1	23	34	20	7	3	5
Tennessee.....	9	0	27	16	19	12	12	8
Alabama.....	0	1	9	5	10	0	3	7
Mississippi.....	0	0	3	4	6	1	4	3

¹ Week ended Friday.

² Figures for 1930 are exclusive of Oklahoma City and Tulsa, and for 1929 are exclusive of Oklahoma City only.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended May 17, 1930, and May 18, 1929—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended May 17, 1930	Week ended May 18, 1929	Week ended May 17, 1930	Week ended May 18, 1929	Week ended May 17, 1930	Week ended May 18, 1929	Week ended May 17, 1930	Week ended May 18, 1929
West South Central States:								
Arkansas.....	0	0	1	5	13	2	1	7
Louisiana.....	0	0	10	43	6	4	18	80
Oklahoma ¹	0	0	14	40	74	74	3	6
Texas.....	0	0	34	31	61	137	10	8
Mountain States:								
Montana.....	1	0	24	15	3	14	0	1
Idaho.....	0	0	2	4	1	3	1	0
Wyoming.....	0	0	10	9	6	6	0	0
Colorado.....	0	1	22	28	6	19	2	1
New Mexico.....	2	0	11	2	5	1	1	2
Arizona.....	1	0	6	0	9	12	4	2
Utah ²	0	0	2	8	2	6	0	0
Pacific States								
Washington.....	0	0	36	22	62	30	4	1
Oregon.....	0	0	14	15	19	27	3	0
California.....	14	4	142	379	47	44	6	9

¹ Week ended Friday.

² Figures for 1930 are exclusive of Oklahoma City and Tulsa and for 1929 are exclusive of Oklahoma City only.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Menin- gococ- cus menin- gitis	Diph- theria	Influen- za	Ma- laria	Meas- les	Pella- gra	Polio- mye- litis	Scarlet fever	Small- pox	Ty- phoid fever
March, 1930										
Hawaii Territory...	21	18	21	-----	54	-----	4	4	0	15
Iowa.....	12	47	-----	-----	2,435	-----	0	406	412	6
April, 1930										
Alabama.....	16	53	357	246	691	46	0	47	27	13
Florida.....	3	30	5	20	1,957	5	0	32	-----	9
Georgia.....	4	30	266	207	905	49	0	86	5	18
Louisiana.....	18	105	62	97	443	96	2	82	50	58
Maryland.....	8	76	127	1	257	-----	1	548	0	13
Minnesota.....	11	52	9	1	1,137	2	1	522	18	7
New Hampshire.....	-----	5	16	-----	-----	-----	-----	77	0	2
New Jersey.....	15	462	72	-----	5,864	-----	2	1,030	0	9
New York.....	88	581	-----	9	7,671	-----	4	2,368	35	60
Pennsylvania.....	74	512	-----	-----	6,409	1	6	2,089	5	47
Rhode Island.....	-----	36	7	-----	21	-----	0	142	0	1
South Carolina.....	-----	97	2,633	969	-----	558	4	22	14	23
West Virginia.....	10	42	112	-----	506	-----	1	158	142	45

March, 1930		March, 1930—Continued	
Chicken pox:	Cases	Leprosy.	Cases
Hawaii.....	27	Hawaii.....	5
Iowa.....	165	Mumps:	
Conjunctivitis, follicular:		Hawaii.....	14
Hawaii.....	85	Iowa.....	171
Dysentery:		Tetanus:	
Hawaii (bacillary).....	1	Hawaii.....	2
German measles:		Trachoma:	
Iowa.....	3	Hawaii.....	3
Hookworm disease:		Undulant fever:	
Hawaii.....	3	Iowa.....	10

March, 1930—Continued

Whooping cough:	Cases
Hawaii.....	17
Iowa.....	81

April, 1930

Actinomycosis:	
Pennsylvania.....	1
Anthrax:	
Georgia.....	1
New York.....	4
Chicken pox:	
Alabama.....	254
Florida.....	306
Georgia.....	163
Louisiana.....	158
Maryland.....	861
Minnesota.....	515
New Jersey.....	959
New York.....	2,657
Pennsylvania.....	2,751
Rhode Island.....	71
South Carolina.....	338
West Virginia.....	209
Conjunctivitis:	
Georgia.....	12
Dengue:	
Georgia.....	2
South Carolina.....	11
Diarrhea:	
Maryland.....	3
South Carolina.....	538
Dysentery:	
Georgia.....	32
Louisiana.....	3
Maryland.....	4
Minnesota (amebic).....	3
New Jersey.....	2
New York.....	1
South Carolina.....	2
German measles:	
Maryland.....	167
New Jersey.....	1,423
New York.....	1,804
Rhode Island.....	126
South Carolina.....	93
Hookworm disease:	
Georgia.....	228
Louisiana.....	518
South Carolina.....	117
Impetigo contagiosa:	
Maryland.....	2
Lead poisoning:	
New Jersey.....	3
Pennsylvania.....	1
Leprosy:	
Alabama.....	1
Louisiana.....	2
Lethargic encephalitis:	
Alabama.....	1
Georgia.....	1
Louisiana.....	4
Maryland.....	1
New York.....	12
Pennsylvania.....	3
Rhode Island.....	1

April, 1930—Continued

Mumps:	Cases
Alabama.....	69
Florida.....	699
Georgia.....	251
Louisiana.....	16
Maryland.....	132
New York.....	3,029
Pennsylvania.....	1,876
Rhode Island.....	1
South Carolina.....	193
Ophthalmia neonatorum:	
Maryland.....	2
New Jersey.....	2
New York.....	5
Pennsylvania.....	10
South Carolina.....	7
Paratyphoid fever:	
Minnesota.....	1
New Jersey.....	4
New York.....	9
South Carolina.....	8
Psittacosis:	
Maryland.....	1
Puerperal fever:	
New York.....	17
Pennsylvania.....	17
Rabies in animals:	
Louisiana.....	24
Maryland.....	1
New York.....	12
Rhode Island.....	6
South Carolina.....	14
Scabies:	
Maryland.....	1
Septic sore throat:	
Georgia.....	64
Maryland.....	17
New York.....	24
Rhode Island.....	5
Tetanus:	
Louisiana.....	2
Maryland.....	3
New York.....	3
Pennsylvania.....	3
Trachoma:	
Louisiana.....	1
New Jersey.....	1
New York.....	3
Pennsylvania.....	1
Rhode Island.....	2
Trichinosis:	
New Jersey.....	1
Pennsylvania.....	17
Tularaemia:	
Georgia.....	4
Louisiana.....	1
Maryland.....	1
Minnesota.....	2
South Carolina.....	2
Typhus fever:	
Florida.....	2
Georgia.....	3
Undulant fever:	
Alabama.....	2
Louisiana.....	2

April, 1930—Continued		April, 1930—Continued	
Undulant fever—Continued.	Cases	Whooping cough—Continued.	Cases
Maryland.....	2	Georgia.....	199
Minnesota.....	3	Louisiana.....	38
New York.....	14	Maryland.....	150
Pennsylvania.....	2	Minnesota.....	207
Vincent's angina:		New Jersey.....	430
Maryland.....	9	New York.....	1,601
New York ¹	83	Pennsylvania.....	1,158
Whooping cough:		Rhode Island.....	123
Alabama.....	209	South Carolina.....	557
Florida.....	70	West Virginia.....	233

RECIPROCAL NOTIFICATIONS

Notifications regarding communicable diseases sent during the month of April, 1930, by departments of health of certain States to other State health departments

Disease	California	Illinois	Massachusetts	Minnesota	New York	Washington
Gonorrhea.....				1		
Measles.....					2	
Meningococcus meningitis.....				2		
Rocky Mountain spotted fever.....						1
Scarlet fever.....				2	2	
Smallpox.....		4		1	1	
Syphilis.....				1		
Tuberculosis.....		9	1	34		
Typhoid fever.....	2	1	2			

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 98 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 32,165,000. The estimated population of the 91 cities reporting deaths is more than 30,570,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended May 10, 1930, and May 11, 1929

	1930	1929	Estimated expectancy
<i>Cases reported</i>			
Diphtheria:			
46 States.....	1,051	1,421	
98 cities.....	488	844	825
Measles:			
45 States.....	18,850	15,956	
98 cities.....	8,903	5,432	
Meningococcus meningitis:			
46 States.....	218	299	
98 cities.....	91	137	
Pollomyelitis:			
47 States.....	24	18	
Scarlet fever:			
46 States.....	3,920	4,304	
98 cities.....	1,628	1,758	1,286
Smallpox:			
46 States.....	1,259	1,039	
98 cities.....	151	67	72
Typhoid fever:			
46 States.....	203	306	
98 cities.....	41	66	86
<i>Deaths reported</i>			
Influenza and pneumonia:			
91 cities.....	857	687	
Smallpox:			
91 cities.....	2	0	
Cleveland, Ohio.....	1	0	
Omaha, Nebraska.....	1	0	

¹ Exclusive of New York City.

City reports for week ended May 10, 1930

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1921 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneu- monia, deaths reported
		Cases, estimated expect- ancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND								
Maine:								
Portland.....	9	1	0	-----	0	0	68	0
New Hampshire:								
Concord.....	0	0	0	-----	0	0	0	0
Manchester.....	0	0	0	-----	0	0	0	2
Nashua.....	0	0	0	-----	0	0	0	0
Vermont:								
Barre.....	1	0	0	-----	0	10	1	0
Massachusetts:								
Boston.....	0	35	18	-----	2	637	43	36
Fall River.....	4	3	0	-----	0	3	0	0
Springfield.....	10	2	1	-----	0	2	1	1
Worcester.....	15	4	1	-----	0	281	0	1
Rhode Island:								
Pawtucket.....	21	1	1	-----	0	2	0	0
Providence.....	2	6	5	-----	0	1	0	7
Connecticut:								
Bridgeport.....	1	4	1	3	2	2	1	4
Hartford.....	2	5	0	1	0	6	0	1
New Haven.....	27	1	0	-----	0	8	12	4
MIDDLE ATLANTIC								
New York:								
Buffalo.....	16	10	11	-----	0	25	9	21
New York.....	247	200	99	20	10	1,730	210	246
Rochester.....	16	8	0	-----	0	36	4	3
Syracuse.....	21	4	0	-----	0	30	46	7
New Jersey:								
Camden.....	3	8	9	-----	0	1	2	4
Newark.....	30	14	17	1	1	353	25	11
Trenton.....	2	2	5	1	0	10	0	3
Pennsylvania:								
Philadelphia.....	88	59	15	3	6	335	60	46
Pittsburgh.....	46	16	30	-----	4	335	11	43
Reading.....	4	2	1	-----	0	1	7	4
Scranton.....	9	3	1	-----	0	1	0	0
EAST NORTH CENTRAL								
Ohio:								
Cincinnati.....	4	6	2	-----	0	97	10	16
Cleveland.....	116	22	19	4	2	11	79	13
Columbus.....	9	3	2	1	2	147	3	8
Toledo.....	47	4	1	2	2	64	11	4
Indiana:								
Fort Wayne.....	1	2	0	-----	0	0	0	0
Indianapolis.....	19	3	1	-----	0	5	7	14
South Bend.....	0	1	1	-----	0	0	0	1
Terre Haute.....	1	0	0	-----	0	31	0	3
Illinois:								
Chicago.....	131	82	94	2	6	49	65	59
Springfield.....	5	1	0	-----	0	0	0	1
Michigan:								
Detroit.....	78	43	39	3	1	994	71	22
Flint.....	13	3	0	-----	1	140	4	1
Grand Rapids.....	4	1	1	-----	0	0	2	1

City reports for week ended May 10, 1930—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST NORTH CENTRAL—continued								
Wisconsin:								
Kenosha.....	6	0	0	-----	0	0	0	0
Madison.....	12	0	0	-----	0	31	2	1
Milwaukee.....	123	11	7	2	2	13	98	6
Racine.....	0	2	0	-----	0	5	0	2
Superior.....	0	0	0	-----	0	2	1	1
WEST NORTH CENTRAL								
Minnesota:								
Duluth.....	3	0	0	-----	0	45	0	1
Minneapolis.....	56	14	2	-----	1	35	45	10
St. Paul.....	25	10	0	-----	0	2	15	8
Iowa:								
Davenport.....	4	1	0	-----	-----	21	0	-----
Des Moines.....	1	1	0	-----	-----	12	3	-----
Sioux City.....	6	0	0	-----	-----	153	12	-----
Waterloo.....	20	0	0	-----	-----	3	0	-----
Missouri:								
Kansas City.....	24	3	0	-----	0	12	7	9
St. Joseph.....	0	0	0	-----	0	0	1	3
St. Louis.....	55	35	18	-----	-----	25	8	-----
North Dakota:								
Fargo.....	0	0	0	-----	0	1	43	3
Grand Forks.....	0	0	0	-----	-----	0	0	-----
South Dakota:								
Aberdeen.....	1	0	0	-----	-----	6	2	-----
Sioux Falls.....	0	0	0	-----	-----	8	0	-----
Nebraska:								
Omaha.....	12	2	2	-----	0	58	1	4
Kansas:								
Topeka.....	8	1	0	-----	0	231	21	1
Wichita.....	7	1	1	-----	0	90	1	3
SOUTH ATLANTIC								
Delaware:								
Wilmington.....	3	1	2	-----	0	1	0	2
Maryland:								
Baltimore.....	189	21	10	4	0	41	24	20
Cumberland.....	7	0	0	-----	0	0	0	12
Frederick.....	0	0	0	-----	0	0	0	0
District of Columbia:								
Washington.....	37	11	8	1	1	60	0	7
Virginia:								
Lynchburg.....	13	1	0	-----	0	61	8	2
Norfolk.....	41	0	1	-----	0	4	42	2
Richmond.....	5	2	5	-----	0	5	1	3
Roanoke.....	2	0	0	-----	0	249	0	1
West Virginia:								
Charleston.....	10	1	1	2	1	1	7	1
Wheeling.....	11	0	0	-----	0	6	0	4
North Carolina:								
Raleigh.....	1	1	0	-----	0	0	0	0
Wilmington.....	6	0	0	-----	0	2	0	2
Winston-Salem.....	13	0	0	-----	0	5	12	4
South Carolina:								
Charleston.....	0	0	0	0	0	0	2	3
Columbia.....	2	0	0	-----	0	0	5	4
Georgia:								
Atlanta.....	6	2	4	19	1	86	11	7
Brunswick.....	0	0	0	-----	0	0	2	1
Savannah.....	1	0	1	-----	0	0	0	2
Florida:								
Miami.....	0	1	2	1	0	9	0	1
St. Petersburg.....	-----	0	-----	-----	0	-----	-----	2
Tampa.....	4	1	0	-----	0	131	15	1

¹ Nonresident.

City reports for week ended May 10, 1930—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneu- monia, deaths reported
		Cases, estimated expect- ancy	Cases reported	Cases reported	Deaths reported			
EAST SOUTH CENTRAL								
Kentucky:								
Covington.....	0	1	0	-----	0	4	0	2
Tennessee:								
Memphis.....	19	2	1	-----	0	0	18	9
Nashville.....	0	1	0	-----	2	44	0	2
Alabama:								
Birmingham.....	5	1	0	2	0	19	8	8
Mobile.....	2	0	0	-----	0	4	0	1
Montgomery.....	1	0	0	-----	-----	3	0	-----
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith.....	0	0	0	-----	-----	39	0	-----
Little Rock.....	5	1	0	-----	0	1	0	1
Louisiana:								
New Orleans.....	0	7	10	2	1	5	0	15
Shreveport.....	9	1	0	-----	0	4	1	6
Oklahoma:								
Oklahoma City..	1	1	0	2	0	37	1	4
Tulsa.....	32	1	0	-----	-----	73	2	-----
Texas:								
Dallas.....	7	3	8	3	4	154	4	7
Fort Worth.....	7	1	2	-----	1	30	1	4
Galveston.....	0	0	0	-----	0	0	0	0
Houston.....	1	3	3	-----	0	1	0	7
San Antonio.....	0	2	0	-----	3	0	0	10
MOUNTAIN								
Montana:								
Billings.....	0	0	0	-----	0	6	0	0
Great Falls.....	3	0	0	-----	0	1	5	0
Helena.....	0	0	0	-----	0	0	0	0
Missoula.....	0	0	0	-----	0	0	0	1
Idaho:								
Boise.....	1	0	0	-----	0	1	0	1
Colorado:								
Denver.....	25	9	8	-----	0	713	12	8
Pueblo.....	5	0	0	-----	0	4	103	1
Arizona:								
Phoenix.....	1	0	1	-----	0	11	1	3
Utah:								
Salt Lake City..	3	3	0	-----	0	309	9	3
Nevada:								
Reno.....	0	0	0	-----	0	2	1	0
PACIFIC								
Washington:								
Seattle.....	25	3	0	-----	-----	279	65	-----
Spokane.....	26	2	2	4	-----	11	0	-----
Tacoma.....	5	1	0	-----	0	115	0	0
Oregon:								
Portland.....	10	6	3	1	0	31	6	5
Salem.....	9	0	2	-----	0	2	6	0
California:								
Los Angeles.....	41	35	10	12	2	398	49	11
Sacramento.....	2	2	3	-----	0	37	24	3
San Francisco.....	42	16	9	2	1	144	80	7

City reports for week ended May 10, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culosis, deaths re-ported	Typhoid fever			Whoop- ing cough, cases re-ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
NEW ENGLAND											
Maine:											
Portland.....	3	5	0	0	0	1	1	0	0	14	19
New Hampshire:											
Concord.....	1	0	0	0	0	0	0	0	0	0	8
Manchester.....	3	0	0	0	0	0	0	0	0	0	26
Nashua.....	1	0	0	0	0	0	0	0	0	0	-----
Vermont:											
Barre.....	1	0	0	1	0	0	0	0	0	0	4
Massachusetts:											
Boston.....	66	73	0	0	0	17	2	0	0	61	253
Fall River.....	4	1	0	0	0	0	0	0	0	1	29
Springfield.....	8	6	0	0	0	1	0	0	0	17	32
Worcester.....	7	8	0	0	0	1	0	0	0	9	51
Rhode Island:											
Pawtucket.....	1	1	0	0	0	0	0	0	0	3	18
Providence.....	9	14	0	0	0	4	0	0	0	4	76
Connecticut:											
Bridgeport.....	11	7	0	0	0	1	0	0	0	1	28
Hartford.....	5	3	0	0	0	1	0	0	0	2	40
New Haven.....	5	10	0	0	0	2	0	0	0	9	45
MIDDLE ATLANTIC											
New York:											
Buffalo.....	25	22	0	0	0	14	0	0	1	24	157
New York.....	287	326	0	0	0	120	8	8	1	62	1,714
Rochester.....	12	8	0	0	0	2	0	0	0	3	71
Syracuse.....	10	13	0	0	0	1	0	0	0	43	56
New Jersey:											
Camden.....	5	2	0	0	0	0	0	0	0	0	39
Newark.....	29	43	0	0	0	9	0	0	0	17	127
Trenton.....	3	2	0	0	0	1	0	0	0	0	45
Pennsylvania:											
Philadelphia.....	91	144	0	0	0	30	2	1	0	12	544
Pittsburgh.....	30	23	0	0	0	9	0	0	0	36	184
Reading.....	5	4	0	0	0	0	0	0	0	3	18
Scranton.....	2	0	0	0	0	0	0	0	0	8	-----
EAST NORTH CEN- TRAL											
Ohio:											
Cincinnati.....	16	11	2	1	0	8	1	1	1	4	154
Cleveland.....	39	58	1	1	1	8	1	2	0	48	196
Columbus.....	8	5	2	0	0	5	0	0	0	1	107
Toledo.....	11	18	1	1	0	11	1	2	0	3	91
Indiana:											
Fort Wayne.....	3	2	1	8	0	0	0	0	0	0	40
Indianapolis.....	13	26	8	6	0	2	0	0	0	17	-----
South Bend.....	4	10	0	0	0	1	0	0	0	3	17
Terre Haute.....	2	1	0	1	0	1	0	0	0	0	27
Illinois:											
Chicago.....	116	232	2	4	0	48	2	0	0	59	731
Springfield.....	4	1	1	1	0	0	0	0	0	6	11
Michigan:											
Detroit.....	106	105	1	6	0	33	2	1	0	96	313
Flint.....	7	11	2	2	0	4	0	0	0	19	84
Grand Rapids.....	9	14	0	4	0	1	0	0	0	5	28
Wisconsin:											
Kenosha.....	2	11	0	2	0	0	0	0	0	6	7
Madison.....	2	3	0	0	-----	0	0	0	-----	9	7
Milwaukee.....	5	24	1	0	0	10	0	0	0	29	126
Racine.....	30	2	1	0	0	2	0	0	0	3	15
Superior.....	2	0	0	0	0	0	0	0	0	0	9
WEST NORTH CEN- TRAL											
Minnesota:											
Duluth.....	7	1	0	1	0	2	0	0	0	13	16
Minneapolis.....	40	13	2	0	0	3	1	0	0	4	107
St. Paul.....	22	8	1	0	0	2	0	0	0	16	66

City reports for week ended May 10, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culosis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
WEST NORTH CEN- TRAL—contd											
Iowa:											
Davenport.....	1	0	1	37	-----	-----	0	0	-----	0	-----
Des Moines.....	5	6	1	9	-----	-----	0	0	-----	0	40
Sioux City.....	1	8	0	3	-----	-----	0	0	-----	3	-----
Waterloo.....	2	2	0	22	-----	-----	0	0	-----	3	-----
Missouri:											
Kansas City.....	12	21	1	0	0	8	0	1	0	16	105
St. Joseph.....	3	4	0	0	0	0	0	0	0	3	18
St. Louis.....	31	54	3	2	0	14	1	3	1	6	225
North Dakota:											
Fargo.....	1	0	0	1	0	0	0	0	0	3	8
Grand Forks.....	1	0	0	0	-----	-----	0	0	-----	0	-----
South Dakota:											
Aberdeen.....	1	1	0	5	-----	-----	0	0	-----	10	-----
Sioux Falls.....	3	0	0	4	-----	-----	0	0	-----	0	-----
Nebraska:											
Omaha.....	3	7	4	17	1	2	0	0	0	2	63
Kansas:											
Topeka.....	3	0	0	4	0	0	0	0	0	17	19
Wichita.....	3	5	1	2	0	1	0	0	0	0	24
SOUTH ATLANTIC											
Delaware:											
Wilmington.....	4	0	0	0	0	2	0	0	0	1	25
Maryland:											
Baltimore.....	33	80	0	0	0	21	2	2	0	25	239
Cumberland.....	0	0	0	0	0	0	0	0	0	0	13
Frederick.....	0	0	0	0	0	0	0	0	0	0	3
District of Colum- bia:											
Washington.....	22	14	0	0	0	13	1	2	2	7	167
Virginia:											
Lynchburg.....	0	0	0	0	0	0	0	0	0	7	13
Norfolk.....	1	2	1	0	0	0	0	0	0	4	-----
Richmond.....	3	6	0	0	0	3	1	0	0	0	54
Roanoke.....	0	0	0	0	0	0	0	0	1	3	15
West Virginia:											
Charleston.....	0	1	0	0	0	0	1	1	0	6	10
Wheeling.....	1	2	0	0	0	0	0	0	0	10	21
North Carolina:											
Raleigh.....	0	0	1	0	0	2	0	0	1	4	13
Wilmington.....	0	0	0	0	0	1	0	0	0	9	11
Winston-Salem.....	1	0	2	0	0	2	0	2	0	7	16
South Carolina:											
Charleston.....	0	0	1	0	0	0	0	0	0	0	29
Columbia.....	0	0	0	0	0	0	0	0	1	5	26
Georgia:											
Atlanta.....	4	15	4	0	0	7	0	0	0	5	81
Brunswick.....	0	0	0	0	0	1	0	0	0	0	4
Savannah.....	0	0	0	0	0	5	0	1	0	0	34
Florida:											
Miami.....	0	1	1	11	0	1	1	0	0	0	23
St. Petersburg.....	0	-----	0	-----	0	0	0	-----	0	-----	13
Tampa.....	0	3	0	0	0	1	1	0	0	2	16
EAST SOUTH CEN- TRAL											
Kentucky:											
Covington.....	1	0	1	0	0	0	0	0	1	0	20
Tennessee:											
Memphis.....	7	16	1	0	0	11	1	2	0	8	100
Nashville.....	2	5	0	0	0	2	1	1	0	1	35
Alabama:											
Birmingham.....	1	2	3	0	0	6	1	0	0	7	80
Mobile.....	0	0	0	1	0	0	0	0	0	0	17
Montgomery.....	0	0	0	0	-----	-----	0	0	-----	2	-----

¹ Nonresident.

City reports for week ended May 10, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith.....	0	0	0	0	-----	-----	0	0	-----	0	-----
Little Rock.....	1	0	0	0	0	0	0	0	0	0	-----
Louisiana:											
New Orleans.....	7	15	0	1	0	15	2	1	0	2	137
Shreveport.....	0	0	1	0	0	1	0	0	0	0	27
Oklahoma:											
Oklahoma City.....	1	10	2	10	0	4	0	0	0	0	30
Tulsa.....	0	3	2	2	-----	-----	0	0	-----	12	-----
Texas:											
Dallas.....	2	9	2	1	0	6	0	0	0	5	64
Fort Worth.....	2	0	4	1	0	2	0	1	0	0	43
Galveston.....	0	0	1	0	0	1	1	0	0	0	17
Houston.....	2	1	0	9	0	5	0	0	0	0	75
San Antonio.....	0	2	0	0	0	6	0	0	1	0	86
MOUNTAIN											
Montana:											
Billings.....	0	1	1	0	0	0	0	0	0	0	7
Great Falls.....	0	17	1	0	0	1	0	0	0	0	12
Helena.....	0	1	0	0	0	0	0	0	0	0	7
Missoula.....	0	0	0	3	0	0	0	0	0	1	7
Idaho:											
Boise.....	1	1	0	0	0	0	0	0	0	0	5
Colorado:											
Denver.....	12	15	0	1	0	6	0	1	0	65	68
Pueblo.....	1	0	0	2	0	1	0	1	0	0	13
Arizona:											
Phoenix.....	1	0	0	6	0	1	0	0	0	2	18
Utah:											
Salt Lake City.....	2	7	1	0	0	0	0	0	0	49	85
Nevada:											
Reno.....	0	0	0	3	0	0	0	0	0	0	2
PACIFIC											
Washington:											
Seattle.....	7	10	3	2	-----	-----	1	1	-----	19	-----
Spokane.....	5	0	6	26	-----	-----	0	0	-----	23	-----
Tacoma.....	3	0	3	6	0	1	0	2	0	6	27
Oregon:											
Portland.....	5	1	7	27	0	3	1	0	0	35	59
Salem.....	0	0	0	0	0	0	0	0	0	3	-----
California:											
Los Angeles.....	30	25	5	3	0	28	0	5	1	18	253
Sacramento.....	2	2	0	4	0	1	1	0	0	3	20
San Francisco.....	20	28	1	0	0	10	1	2	0	4	160

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Pollomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Rhode Island:									
Providence.....	1	0	0	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
New York City ¹	10	8	6	2	0	0	1	3	3
Syracuse.....	0	1	0	0	0	0	0	0	0

¹ Typhus fever: 1 case at New York City, N. Y.

City reports for week ended May 10, 1930—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Polioomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
MIDDLE ATLANTIC—contd.									
New Jersey:									
Newark.....	4	0	0	0	0	0	0	0	0
Pennsylvania:									
Philadelphia.....	4	3	0	0	0	0	0	0	0
Pittsburgh.....	5	2	0	0	0	0	0	0	0
EAST NORTH CENTRAL									
Ohio:									
Cincinnati.....	2	1	0	0	0	0	0	0	0
Cleveland.....	3	2	0	0	0	0	0	0	0
Toledo.....	0	1	0	0	0	0	0	0	0
Indiana:									
Indianapolis.....	4	1	0	0	0	0	0	0	0
Illinois:									
Chicago.....	11	3	0	0	0	0	0	0	0
Michigan:									
Detroit.....	15	9	0	0	0	0	0	0	0
Flint.....	2	0	0	0	0	0	0	0	0
Wisconsin:									
Milwaukee.....	1	2	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
Minneapolis.....	1	0	0	0	0	0	0	0	0
Iowa:									
Waterloo.....	2	1	0	0	0	0	0	0	0
Missouri:									
Kansas City.....	1	1	0	0	0	1	0	0	0
Nebraska:									
Omaha.....	1	0	0	0	0	0	0	0	0
SOUTH ATLANTIC									
Maryland:									
Baltimore.....	2	1	0	0	0	0	0	1	0
District of Columbia:									
Washington.....	1	1	0	0	0	0	0	0	0
Virginia:									
Richmond.....	0	1	0	0	0	0	0	0	0
West Virginia:									
Charleston.....	1	1	0	0	0	0	0	0	0
North Carolina:									
Raleigh.....	0	0	0	0	0	2	0	0	0
Wilmington.....	0	0	0	0	0	2	0	0	0
Winston-Salem.....	0	0	0	0	2	0	0	0	0
South Carolina:									
Charleston.....	0	0	0	0	1	0	0	0	0
Georgia:									
Atlanta.....	1	1	0	0	1	0	0	0	0
Savannah.....	0	1	0	0	1	1	0	0	0
Florida:									
Miami.....	0	0	0	0	2	0	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis.....	12	2	0	0	0	3	0	0	0
Alabama:									
Birmingham.....	1	1	1	1	0	0	0	0	0
Montgomery.....	0	0	0	0	2	0	0	0	0
WEST SOUTH CENTRAL									
Louisiana:									
New Orleans.....	1	0	0	0	4	1	0	0	0
Oklahoma:									
Tulsa.....	2	1	0	0	0	0	0	0	0
Arizona:									
Phoenix.....	1	1	0	0	0	0	0	0	0
Utah:									
Salt Lake City.....	1	2	0	0	0	0	0	0	0

City reports for week ended May 10, 1930—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Polioomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
PACIFIC									
Washington.									
Seattle.....	4	0	0	0	0	0	0	0	0
Oregon:									
Portland.....	1	0	1	0	0	0	0	0	0
California:									
Los Angeles.....	0	0	0	0	0	0	1	2	0

The following table gives the rates per 100,000 population for 98 cities for the 5-week period ended May 10, 1930, compared with those for a like period ended May 11, 1929. The population figures used in computing the rates are approximate estimates, authoritative figures for many of the cities not being available. The 98 cities reporting cases have an estimated aggregate population of more than 32,000,000. The 91 cities reporting deaths have more than 30,500,000 estimated population.

Summary of weekly reports from cities, April 6 to May 10, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929¹

DIPHTHERIA CASE RATES

	Week ended									
	Apr. 12, 1930	Apr. 13, 1929	Apr. 19, 1930	Apr. 20, 1929	Apr. 26, 1930	Apr. 27, 1929	May 3, 1930	May 4, 1929	May 10, 1930	May 11, 1929
98 cities.....	95	124	88	135	93	136	2 86	135	79	139
New England.....	75	117	109	141	78	110	75	81	60	117
Middle Atlantic.....	87	106	87	108	104	104	76	190	89	206
East North Central.....	115	126	96	122	114	143	132	160	104	145
West North Central.....	87	83	85	112	66	85	66	77	44	104
South Atlantic.....	73	71	59	66	59	58	46	69	57	64
East South Central.....	7	75	20	7	54	55	0	21	7	27
West South Central.....	164	122	220	99	108	126	107	99	78	88
Mountain.....	77	61	9	70	86	78	43	61	69	82
Pacific.....	59	65	43	58	57	58	71	72	57	39

MEASLES CASE RATES

98 cities.....	1,222	824	1,255	896	1,387	838	21,331	928	1,443	894
New England.....	1,431	638	1,491	498	1,566	561	1,779	496	2,109	480
Middle Atlantic.....	1,019	160	1,156	146	1,256	153	1,353	165	1,365	186
East North Central.....	913	1,946	1,084	2,028	1,009	1,964	1,026	2,322	936	2,194
West North Central.....	1,174	1,657	988	2,124	1,324	1,713	963	1,776	1,243	1,549
South Atlantic.....	976	464	996	760	1,194	536	1,088	434	1,187	521
East South Central.....	371	130	337	55	450	21	209	130	499	41
West South Central.....	773	232	538	175	635	278	814	343	762	268
Mountain.....	7,475	192	6,617	209	8,573	366	5,758	444	8,891	296
Pacific.....	2,402	319	2,100	377	2,412	377	2,069	287	2,324	422

¹ The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1930 and 1929, respectively.

² South Bend, Ind., Atlanta, Ga., and Little Rock, Ark., not included.

³ South Bend, Ind., not included.

⁴ Atlanta, Ga., not included.

⁵ Little Rock, Ark., not included.

Summary of weekly reports from cities, April 6 to May 10, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929—Continued

SCARLET FEVER CASE RATES

	Week ended									
	Apr. 12, 1930	Apr. 13, 1929	Apr. 19, 1930	Apr. 20, 1929	Apr. 26, 1930	Apr. 27, 1929	May 3, 1930	May 4, 1929	May 10, 1930	May 11, 1929
98 cities.....	327	270	305	268	267	295	302	299	264	289
New England.....	321	317	368	242	319	292	246	278	284	260
Middle Atlantic.....	206	224	276	224	252	246	300	245	281	209
East North Central.....	428	372	395	418	343	451	393	407	321	454
West North Central.....	391	242	359	216	243	281	376	262	233	277
South Atlantic.....	282	122	277	90	227	97	258	114	222	243
East South Central.....	148	185	162	144	142	109	148	226	155	130
West South Central.....	116	229	123	225	64	217	127	274	101	309
Mountain.....	328	165	342	70	223	122	352	78	70	52
Pacific.....	253	374	168	372	205	394	128	345	151	282

SMALLPOX CASE RATES

98 cities.....	29	12	28	9	30	13	28	12	24	11
New England.....	2	2	2	0	0	0	0	0	2	2
Middle Atlantic.....	0	0	0	0	0	0	1	0	0	0
East North Central.....	23	20	23	11	18	17	21	15	23	17
West North Central.....	146	8	137	10	142	13	129	13	99	27
South Atlantic.....	9	4	4	2	0	2	0	0	0	0
East South Central.....	13	7	20	0	47	0	40	21	7	27
West South Central.....	30	76	75	11	41	23	36	42	41	8
Mountain.....	60	78	26	44	94	26	146	122	77	26
Pacific.....	104	10	83	60	128	80	85	39	97	39

TYPHOID FEVER CASE RATES

98 cities.....	5	12	6	10	6	8	7	8	7	11
New England.....	0	9	7	7	4	4	2	7	0	11
Middle Atlantic.....	1	7	2	8	5	4	3	5	4	3
East North Central.....	1	11	3	4	6	4	6	3	3	6
West North Central.....	4	25	8	10	4	12	4	10	8	31
South Atlantic.....	20	13	20	24	11	17	6	11	15	15
East South Central.....	20	21	7	7	0	21	27	27	20	27
West South Central.....	7	42	7	42	26	34	24	30	4	53
Mountain.....	43	0	17	0	0	0	51	9	17	0
Pacific.....	5	7	9	10	5	7	7	10	24	7

INFLUENZA DEATH RATES

91 cities.....	17	15	15	15	12	13	9	8	10	10
New England.....	7	7	7	9	11	7	4	2	9	2
Middle Atlantic.....	21	14	15	10	9	12	10	6	10	8
East North Central.....	8	15	13	14	14	6	7	5	9	7
West North Central.....	9	6	18	18	9	12	9	18	3	3
South Atlantic.....	24	17	20	21	11	13	12	11	5	17
East South Central.....	52	30	66	15	44	30	22	30	15	37
West South Central.....	27	31	27	51	27	43	24	8	31	27
Mountain.....	26	17	9	9	17	52	0	17	0	26
Pacific.....	15	22	3	13	0	13	6	16	9	13

¹ South Bend, Ind., Atlanta, Ga., and Little Rock, Ark., not included.

² South Bend, Ind., not included.

³ Atlanta, Ga., not included.

⁴ Little Rock, Ark., not included.

Summary of weekly reports from cities, April 6 to May 10, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929—Continued

PNEUMONIA DEATH RATES

	Week ended									
	Apr. 12, 1930	Apr. 13, 1929	Apr. 19, 1930	Apr. 20, 1929	Apr. 26, 1930	Apr. 27, 1929	May 3, 1930	May 4, 1929	May 10, 1930	May 11, 1929
91 cities.....	109	139	153	127	144	117	² 138	123	137	109
New England	171	126	146	114	173	144	151	106	120	90
Middle Atlantic.....	195	161	190	134	168	130	³ 172	136	185	123
East North Central.....	126	126	115	119	109	99	⁴ 108	125	93	101
West North Central.....	148	114	154	108	80	111	112	126	124	105
South Atlantic.....	211	165	185	146	192	127	⁴ 182	109	121	109
East South Central.....	228	164	236	157	258	97	140	172	162	149
West South Central.....	195	90	130	78	142	90	⁴ 118	90	176	94
Mountain.....	180	113	163	122	146	87	60	165	120	87
Pacific.....	89	94	46	151	61	119	52	72	64	94

² South Bend, Ind., Atlanta, Ga., and Little Rock, Ark., not included.

³ South Bend, Ind., not included

⁴ Atlanta, Ga., not included

⁵ Little Rock, Ark., not included

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Week ended May 3, 1930.—The Department of Pensions and National Health reports cases of certain communicable diseases in Canada for the week ended May 3, 1930, as follows:

Province	Cerebro-spinal fever	Influenza	Lethargic encephalitis	Poliomyelitis	Smallpox	Typhoid fever
Prince Edward Island ¹.....	.....	.....	.....	.....	.....	.....
Nova Scotia.....	.....	2	.....	.....	.....	.....
New Brunswick ¹.....	.....	.....	.....	.....	.....	.....
Quebec.....	3	.....	.....	.....	.....	35
Ontario.....	4	7	2	.....	12	9
Manitoba.....	.....	.....	.....	1	2	.....
Saskatchewan.....	.....	.....	.....	.....	21	1
Alberta ¹.....	.....	.....	.....	.....	.....	.....
British Columbia.....	.....	.....	.....	2	3	5
Total.....	7	9	2	3	38	50

¹ No case of any disease included in the table was reported during the week.

Quebec Province—Communicable diseases—Week ended May 10, 1930.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended May 10, 1930, as follows:

Disease	Cases	Disease	Cases
Chicken pox.....	89	Mumps.....	137
Diphtheria.....	25	Scarlet fever.....	93
Erysipelas.....	12	Tuberculosis.....	71
German measles.....	40	Typhoid fever.....	14
Influenza.....	3	Whooping cough.....	27
Measles.....	122		

ITALY

Communicable diseases—Four weeks ended February 16, 1930.—During the four weeks ended February 16, 1930, certain communicable diseases were reported in Italy as follows:

Disease	Jan. 20-26		Jan. 27-Feb. 2		Feb. 3-9		Feb. 10-16	
	Cases	Com-munes affected	Cases	Com-munes affected	Cases	Com-munes affected	Cases	Com-munes affected
Anthrax.....	15	15	9	7	21	20	36	27
Cerebrospinal meningitis.....	14	11	11	9	16	15	7	6
Chicken pox.....	414	127	418	131	435	154	546	162
Diphtheria and croup.....	615	352	689	360	642	332	679	347
Dysentery.....	2	1	2	2	2	1	6	6
Lethargic encephalitis.....	1	1	3	3	2	1	3	3
Measles.....	2,966	373	2,850	372	3,299	394	2,752	369
Poliomyelitis.....	2	2	6	5	6	6	6	5
Scarlet fever.....	278	137	427	137	428	154	386	120
Typhoid fever.....	307	197	290	183	315	192	344	195

JAMAICA

Communicable diseases—Four weeks ended April 26, 1930.—During the four weeks ended April 26, 1930, cases of certain communicable diseases were reported in Kingston, Jamaica, and in the Island of Jamaica outside of Kingston, as follows:

Disease	Cases		Disease	Cases	
	Kingston	Other localities		Kingston	Other localities
Chicken pox.....	7	13	Lethargic encephalitis.....	.....	2
Dysentery.....	2	1	Puerperal fever.....	.....	1
Erysipelas.....	.....	2	Tuberculosis.....	20	47
Leprosy.....	1	5	Typhoid fever.....	14	49

VIRGIN ISLANDS

Communicable diseases—April, 1930.—During the month of April, 1930, cases of certain communicable diseases were reported in the Virgin Islands as follows:

St. Thomas and St. John:	Cases	St. Croix.	Cases
Chancroid.....	1	Chicken pox.....	2
Gonorrhea.....	4	Gonorrhea.....	2
Syphilis.....	7	Syphilis.....	4
Tuberculosis.....	2	Tuberculosis.....	1

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

From medical officers of the Public Health Service, American consuls, International Office of Public Hygiene, Pan American Sanitary Bureau, health section of the League of Nations, and other sources. The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

CHOLERA

[C indicates cases; D, deaths; P, present]

Place	Nov. 17- Dec. 14, 1929	Dec. 15, 1929- Jan. 11, 1930	Jan. 12- Feb. 8, 1930	Week ended—												
				February, 1930		March, 1930				April, 1930				May, 1930		
				15	22	1	8	15	22	29	5	12	19	26	3	10
China:																
Canton.....	C	2														
Manchuria—Dairen.....	C							1								
Swatow.....	D	2														
India:																
.....	C	19,582	12,350	6,461	1,577	1,258	1,515	1,564	1,834	2,278						
.....	D	10,903	6,507	3,606	877	765	900	829	829	1,225						
Bassein.....	C											3	1		2	
.....	D											2	1		1	
Bombay.....	C										4					
Calcutta.....	C	265	138	202	65	46	53	105	97	53	110	94	137		165	
Madras.....	D	114	90	110	45	27	25	56	73	25	51	71	85		118	
.....	D	2														
Nagapatam.....	D		1	12												
.....	D		4													
Rangoon.....	D	1	6	3												
.....	D	1	5	3		1	1	1	1	1					1	
Tuticorin.....	D	23	35	3		1									1	
.....	D	6	9	1												
India (French):																
Chander-nagor.....	C	14	1		1	2	1	1	1	1			1		1	
.....	D	12	1									2				
Karikal.....	D		1		2		1	1	1		1	11		1		
.....	D						1				1	8		1		
Pondicherry Province.....	D	4														
.....	D	3														
Indo-China (see also table below):																
Prompenh.....	C	4	3	11		2	5	2								
.....	C	3	3	8	1	2	3	1	5	1	2	2	17	12	19	28
Saigon and Cholon.....	D	2	1	2				4	1	1	6	10	10	13	22	
.....	D															

Place	October, 1929	November, 1929	December, 1929	January, 1930				February, 1930				March, 1930				April, 1930			
				1-10		11-20		21-31		1-10		11-20		21-31		1-10		11-20	
				1-10	11-20	21-31	1-10	11-20	21-31	1-10	11-20	21-31	1-10	11-20	21-31	1-10	11-20	21-31	1-10
Bangkok	D	2	2	1	3	1	1	3	1	1	1	1	1	1	1	1	1	1	1
Nagara Pathom	C	3	9	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
On vessel:	D	1	1																
S. S. at Suva, Fiji Islands	C																		
S. S. Sudley, at Batavia, from Calcutta	C																		

Indo-China (French) (see also table above)

Annam

Cambodia

Cochin-China

Reports incomplete.

PLAGUE

[C indicates cases; D, deaths; P, present]

Place	Oct. 20- Nov. 16, 1929	Nov. 17- Dec. 14, 1929	Dec. 15, 1929- Jan. 11, 1930	Week ended—											
				February, 1930				March, 1930				April, 1930			
				15	22	1	8	15	22	29	5	12	19	26	3
Argentina:															
Andalgala, 1															
Rosario															
Plague-infected rats	C	2	P												
Santa Fe	C	3													
Tucuman	C	1	6												
Villa Lia	C	1													
Azores: Ponta Delgada	D		P			2									
Belgian Congo: Dluu	D	2													

On Mar. 11, 3 deaths from bubonic plague were reported in Andalgala, Catamarca Province, Argentina, since Feb. 5, 1930.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place	Nov. 17- Dec. 14, 1929	Dec. 15- 1929- Jan. 8, 1930	Week ended—														
			February, 1930		March, 1930						April, 1930			May, 1930			
			15	22	1	8	15	22	29	5	12	19	26				
Brazil: Rio de Janeiro.....		1															
British Borneo: Sarawak.....			4	2	15	2											
British East Africa (see also table below):																	
Tanganyika.....	50	27	5			13	36	17	32	53	1						
British South Africa:	10					1	7	3	1	3							
Northern Rhodesia.....	54																
Southern Rhodesia.....	53	33	1	6													
Canada:	4	6															
Alberta.....	22	16	22			1	3	2	5	2	1	3	1				
Edmonton.....	11	15	19			1		1		1	2	3					
British Columbia—Vancouver.....	14	17	16		5	4	1	6	7	3	9	8	1	5	3		
Manitoba.....	6	8	6		2			2	1	1		2			2		
Ontario.....	63	51	63		28	8	50	18	27	26	9	17	30	18	12		
Port William.....			4														
North Bay.....	2		2														
Ottawa.....	4	7	10	1	2	2	6	9		6	4	8	4	7	2	3	
Toronto.....			2														
Quebec.....	10	3	11														
Montreal.....																	
Saskatchewan.....	40	61	86	2	64		10	9	11	15	12	3	10	7	21		
Regina.....		31															
Ceylon:						10											
Angoda, Western Province.....					1	1										6	
Colombo.....		1	1	2	1											2	
China:																	
Canton.....	4	5	7	4	4	1	1	2	1	4			2	1			
Chungking.....			2														
Foochow.....	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	1	
Hong Kong.....	62	102	118	18	16	10	12	10	5	11	20	7	9	8			
	55	73	109	15	11	10	6	10	4	5	11	21	10	3			

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place	Octo-ber, 1929	Novem-ber, 1929	Decem-ber, 1929	January, 1930			February, 1930			March, 1930			Apr. 1-10, 1930		
				1-10	11-20	21-31	1-10	11-20	21-28	1-10	11-20	21-31			
Belgian Congo.....		42	74												
Dahomey.....		2	4												
Indo-China (see also table above).....	4	19	19												
Ivory Coast.....	128	245	142	136	140	184	148	286							
Sudan (French).....		P	17		4	225	12	P	201	200	7	26	261		
Syria: Beirut.....			25			23	1		10	18	31	409	371		
	28	60		18	6	46	4	7	7	4	8	5	10		
	1	6													
Taiwan: Taihoku.....									31	12	31				
Place	Oc-to-ber, 1929	No-vem-ber, 1929	De-cem-ber, 1929	Jan-uary, 1930	Feb-ruary, 1930	March, 1930	Place			Oc-to-ber, 1929	No-vem-ber, 1929	De-cem-ber, 1929	Jan-uary, 1930	Feb-ruary, 1930	March, 1930
Bolivia: La Paz.....	C	120	22				Nigeria			233	228	293			
British East Africa (see also table above):							C			47	45	70			
Kenya.....	C					6	D			57	P				
Chosen.....	C	278	168	12	12		Persia			138	37				
Mexico: Durango (see also table above).....	D	2	2	4	12	5	D			100	136	883	215	114	
Morocco.....	C	12	41	84	29	74	Turkey			29	12	457	66	42	

TYPHUS FEVER

[C indicates cases; D, deaths; P, present]

Place		Week ended—																						
		Oct. 20- Nov. 16, 1929	Nov. 17- Dec. 14, 1929	Dec. 15, 1929- Jan. 8, 1930	Jan. 12- Feb. 8, 1930	February, 1930							March, 1930					April, 1930					May 3, 1930	
						February, 1930							March, 1930					April, 1930						
						15	22	1	8	15	22	29	5	12	19	26								
Algeria:																								
Algiers:	C	2	1	14	3	3	1																	
Constantine Department:	C	1	3	2	4	3	2																	
Oran:	C		1		2																			
Bolivia: La Paz:	C	13	14																					
Brazil: Sao Paulo: ¹	C																							
Bulgaria:	C		9	41																				
Sofia:	D	1	1	2	1																			
Chile:	D	1																						
Talcahuano:	D				1																			
Valparaiso:	D				1																			
China: Tientsin:	C			1	1																			
Chosen (see table below):	C																							
Czechoslovakia (see table below):	C																							
Egypt:																								
Assuan:	C			9																				
Behlra Province:	D	2		7	14	5	13					2												
Cairo:	D	1	1				5																	
Dakahlieh:	D		1	11			5																	
Port Said:	D			2																				
Suez:	C	1		1	2																			
Greece (see table below):	C																							
Iraq: Baghdad Liwa:	C			1																				
Ireland:	D			1																				
Irish Free State:	C			1																				
Dingle—Kerry County:	C																							
Northern Ireland—Cookstown:	C																							
Latvia (see table below):	C																							
Lithuania (see table below):	C																							

1 Press reports show that 10 deaths from typhus fever occurred in Sao Paulo, Brazil, from Nov. 3 to 30, 1929

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER—Continued

[C indicates cases; D, deaths; P, present]

Place	Week ended—											
	February, 1930			March, 1930					April, 1930			May 3, 1930
	15	22	1	8	15	22	29	5	12	19	26	
Mexico: Mexico City, including municipalities in Federal District.....		4	2	3			2	1	2	1		
Morocco.....												
Palestine.....												
Peru: Arequipa (see table below).....												
Poland.....												
Portugal: Oporto.....												
Rumania.....												
Tunisia.....												
Turkey (see table below).....												
Union of South Africa:												
Cape Province.....												
Natal.....												
Orange Free State.....												
Transvaal.....												
Yugoslavia (see table below).....												
Place	Octo-ber, 1929	Novem-ber, 1929	Decem-ber, 1929	Janu-ary, 1930	Febru-ary, 1930	March, 1930	Place					March, 1930
							Octo-ber, 1929	Novem-ber, 1929	Decem-ber, 1929	Janu-ary, 1930	Febru-ary, 1930	
Choson: Seoul.....												
Czechoslovakia.....												
France.....												
Greece: Athens.....												
Latvia.....												
Lithuania.....												
Peru: Arequipa.....												
Turkey.....												
Yugoslavia.....												

YELLOW FEVER

On April 22, 1930, 2 cases of yellow fever were reported at Mace, Brazil. Mace is on the Leopoldina Railway, between Rio de Janeiro and Niotheroy.

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SPECIAL ARTICLES

Blacktongue Preventive Value of Lard, Salt Pork,
Dried Peas, and Canned Haddock

Ctenocephalides, New Genus of Fleas, Type Pulex
Canis



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DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. R. C. WILLIAMS, *Chief of Division*

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A STUDY OF THE BLACKTONGUE PREVENTIVE VALUE OF LARD, SALT PORK, DRIED GREEN PEAS, AND CANNED HADDOCK

By JOSEPH GOLDBERGER,¹ G. A. WHEELER, and L. M. ROGERS, *Surgeons*; and W. H. SEBRELL, *Assistant Surgeon, United States Public Health Service*

I. Introduction

Goldberger and his associates have presented considerable evidence (1) (2) (3) (4) (5) that blacktongue of dogs and pellagra of man are identical conditions, and that both diseases can be cured and prevented by the P-P factor, or antipellagric vitamin.

In a recent communication (4), Goldberger, Wheeler, Lillie, and Rogers reported the blacktongue preventive action of 16 selected foodstuffs with special reference to the identity of blacktongue of dogs and pellagra of man.

The tests herein reported include pork lard, salt pork, dried green peas, and canned haddock, and represent a continuation of the series of experiments designed to test staple foodstuffs for their blacktongue preventive value. In view of the evidence that blacktongue of dogs and pellagra of man are analogous conditions, the success or failure of a given diet in preventing blacktongue is, in our opinion, a satisfactory basis for the evaluation of its pellagra preventive value.

The general methods of caring for and feeding the experimental animals have already been described (2) (3) and were followed without variation. As in the preceding feeding tests of this character, the experimental diets are, as a rule, freshly prepared each day. The daily allowance of food in general is intended to be enough only for the maintenance of normal body weight. Some of the animals were used repeatedly, with intermediate feedings of stock diet for the purpose of reconditioning. The stock diet has been either our diet No. 156, the composition and adequacy of which have already been reported (2), or a modification (diet No. 326) in which the beef of diet No. 156 is replaced by pork liver and the bone meal omitted. The adequacy of the pork liver has been reported by Goldberger, Wheeler, Lillie, and Rogers (4).

¹ This study was organized prior to the death of Surgeon Goldberger, on January 17, 1929, and was, in part, carried out under his direction.

In the tests here reported we have employed the preventive procedure using a test diet in which the components, other than the foodstuff under investigation, are believed to have contributed only an insignificant amount of the blacktongue preventive.

The curative procedure was not used in these tests, since it has always been necessary to check the curative test by a preventive test on account of the remittant or relapsing character of the disease which makes the interpretation of therapeutic results exceedingly difficult. In using the preventive test it has been our custom to continue the test at least one year, and frequently longer, unless symptoms of blacktongue develop at an earlier date.

As in previous studies (2), the first appearance of the mouth lesions has been considered as marking the beginning of the attack of blacktongue.

As reported by Goldberger, Wheeler, Lillie, and Rogers (4), the beginning of the experimental disease, based on the mouth lesion when induced by our basic diet No. 123 (or certain of its modifications) is only exceptionally delayed beyond about 60 days after the beginning of the feeding. We have, therefore, considered a very notable prolongation of this period, when manifested in more than one of a group of test animals, as indicating the presence of the blacktongue preventive in the test diet in an amount somewhat larger than that contained in our standard basic diet.

II. Present Studies

LARD

The wide use of lard in cooking throughout the Southern States, the area in which pellagra is most prevalent in this country, led us to investigate its possible blacktongue-preventive value. The following experiment was accordingly carried out:

Experiment 1

In this study pure pork lard was used, since it is the type of lard usually used in cooking. The lard was incorporated in a diet (No. 302-A), the composition of which is shown in Table 1. This diet is similar in every respect to that reported by Goldberger, Wheeler, Lillie, and Rogers (4) for a test of cottonseed oil, except that the lard quantitatively replaced the cottonseed oil. A suitable caloric portion of this was offered daily to each of five test animals—dogs 40, 112, 113, 138, and 139. The significant details relating to each of the test animals are as follows:

Dog 40.—Male. Whelped in the laboratory June 26, 1923, between which date and April 11, 1928, served in a number of experiments and suffered four attacks of blacktongue, the latest of which began July 9, 1927. On a stock diet for reconditioning from April 11 to May 15, 1928.

May 15, 1928: In good condition; weighs 11.5 kilos; begins test diet No. 302-A.
June 19: Weighs 12.1 kilos.

June 28: At the end of a period of 39 days presented first signs of an attack of blacktongue, a reddened patch on the mucosa of each side of the upper lip and an injection of the floor of the mouth.

August 19: Dead. Blacktongue.

Dog 112.—Female. Acquired December 22, 1926, between which date and April 11, 1928, served in one experiment and suffered no attack of blacktongue. On a stock diet for reconditioning from April 11 to May 15, 1928.

May 15, 1928: In good condition; weighs 8.1 kilos; begins test diet No. 302-A.
August 28: Weighs 6.8 kilos.

September 1: At the end of a period of 109 days presented first signs of an attack of blacktongue, a reddened bandlike lesion on the mucosa of each side of the upper lip, and an injection of the floor of the mouth.

December 21: Found moribund; gassed. Autopsy: Blacktongue and fatty degeneration of the liver.

Dog 113.—Male. Acquired January 17, 1927, between which date and April 11, 1928, served in one experiment and suffered no attack of blacktongue. On a stock diet from April 11 to May 15, 1928.

May 15, 1928: In good condition; weighs 9.8 kilos; begins test diet No. 302-A.

July 24: At the end of a period of 70 days presented signs of an attack of blacktongue, an injection of the floor of the mouth, reddened bandlike lesion on either side of the upper lip. Weighs 9.7 kilos.

September 12: Found dead. Autopsy. Marked fatty degeneration of liver.

Dog 118.—Male. Acquired February 14, 1928, between which date and May 15, 1928, on stock diet.

May 15, 1928: In good condition; weighs 16.5 kilos; begins test diet No. 302-A.

October 16: After a period of 164 days presented first signs of a doubtful attack of blacktongue, a reddened elongated patch on the mucosa of each side of the upper lip. Weighs 11.2 kilos.

October 19: Animal now has purulent conjunctivitis and a mucopurulent discharge from the nostrils. Mouth presents the elongated reddened patch previously noted on each side of the upper lip but which is now covered by three smaller patches of superficial necrotic material. The floor of the mouth, cheeks, and mucosa of the lower lip are all faintly injected.

October 20: Found moribund; gassed. Autopsy: Lesions not exactly typical of blacktongue, fatty degeneration of liver.

Dog 119.—Male. Acquired March 22, 1928, between which date and May 15, 1928, on stock diet.

May 15, 1928: In good condition; weighs 13 kilos; begins test diet No. 302-A.

July 10: Ill-defined, reddened patch covering the mid-portion of the scrotum. Weighs 14.3 kilos.

July 12: After a period of 58 days presented first signs of an attack of blacktongue, a reddened patch on the mucosa of each side of the upper lip and an injection of the floor of the mouth and cheeks; there is also a sharply delimited, slightly reddened area covering the posterior two-thirds of the scrotum.

July 22: The lesion on the scrotum covering the posterior two-thirds now appears pale at the center with a vividly red periphery which sharply delimits the lesion from the normal skin. The central part of the lesion presents a dried, superficial layer which is desquamating in large flakes.

October 11: Found moribund; observed vomiting clear mucous; died during the day. Autopsy: Fatty degeneration of liver.

Summary.—All of the test animals with one possible exception (dog 138) presented signs of an attack of blacktongue in 39, 109, 70, 154, and 58 days, respectively. It would thus appear that lard in the quantity offered did not exert any appreciable blacktongue preventive action and thus that the lard contained little of the blacktongue preventive. Dog 40 presented only the lesions of blacktongue at autopsy. Dogs 112, 113, 138, and 139, in addition to the lesions of blacktongue, presented a fatty degeneration of the liver. The possible relation of this condition to the experimental diet is now under further study.

SALT PORK

The wide use of salt pork as a source of meat in the diet in the endemic pellagra centers of the South led us to investigate its blacktongue preventive potency. The following experiment was accordingly carried out.

Experiment 2

Salt pork butts, obtained on the open market, were used. The skin was removed and the meat run through a meat chopper. This was then incorporated in diet No. 321, the composition of which is shown in Table 2. This is a modification of the lard diet No. 302-A, the lard of which has been replaced by a sufficient quantity of salt pork to yield an equivalent amount of fat. The protein added by the salt pork necessitated a reduction in the quantity of casein in order to avoid unduly increasing the caloric value of the diet. A suitable caloric portion of this diet was offered daily to each of 8 test animals, dogs 52, 95, 114, 116, 131, 132, 133, 140. The significant details relating to each of the test animals are as follows:

Dog 52.—Female. Acquired September 25, 1923, between which date and April 11, 1928, served in several experiments and suffered several attacks of blacktongue, the latest of which began October 6, 1925. On a stock diet for reconditioning from April 11 to May 15, 1928.

May 15, 1928: In good condition; weighs 10.2 kilos; begins test diet No. 321.

August 21: Weighs 11.3 kilos.

August 23: At the end of a period of 100 days presented first signs of an attack of blacktongue, a reddened bandlike lesion on the mucosa of each side of the upper lip, and an injection of the floor of the mouth.

November 22: Found dead. Autopsy: Pleurisy, bronchial pneumonia, fatty degeneration of liver.

Dog 95.—Male. Acquired November 30, 1925, between which date and August 6, 1928, served in several experiments and suffered one attack of blacktongue which began July 21, 1928. On a miscellaneous stock diet for reconditioning from August 6 to September 22, 1928.

September 18, 1928: Weighs 9.4 kilos.

September 22: In good condition; begins test diet No. 321.

October 30: At the end of a period of 38 days presented first sign of an attack of blacktongue, an injection of the floor of the mouth, reddened patch on the mucosa of each side of the upper lip. Weighs 9.9 kilos.

December 29: Found dead. Autopsy: Blacktongue, fatty degeneration of liver.

Dog 114.—Male. Acquired February 16, 1927, between which date and April 11, 1928, served in several experiments and suffered two attacks of blacktongue, the latest of which began October 27, 1927. On a stock diet for reconditioning from April 11 to May 15, 1928.

May 15, 1928: In good condition; weighs 10.2 kilos; begins test diet No. 321.

June 8: At the end of a period of 19 days presents first sign of a beginning attack of blacktongue, an injection of the floor of the mouth.

June 5: Weighs 10.7 kilos.

July 25: Dead. Blacktongue.

Dog 116.—Male. Acquired February 16, 1927, between which date and April 11, 1928, served in one experiment and suffered no attack of blacktongue. On a stock diet from April 11 to May 15, 1928.

May 15, 1928: In good condition; weighs 7.5 kilos; begins test diet No. 321.

August 7: Weighs 7.7 kilos.

August 11: At the end of a period of 88 days presented first signs of an attack of blacktongue, a row of small reddened patches on the mucosa of each side of the upper lip.

September 21: Animal extremely weak; presented signs of blacktongue in the mouth; gassed during the day. Autopsy: Blacktongue, fatty degeneration of liver.

Dog 131.—Female. Whelped in the laboratory June 28, 1927, from which date to July 12, 1928, served in one experiment. Suffered no attack of blacktongue. On a miscellaneous stock diet from July 12 to September 22, 1928. September 22, 1928: In good condition; weighs 6.7 kilos; begins test diet No. 321. October 23: At the end of a period of 31 days presented first signs of an attack of blacktongue, an injection of the floor of the mouth. Weighs 6.5 kilos.

April 2, 1929: Dead. Autopsy: Fatty degeneration of liver; gastric hemorrhage; chronic blacktongue of the colon.

Dog 132.—Female. Whelped in the laboratory June 28, 1927, between which date and July 12, 1928, served in one experiment and suffered no attack of blacktongue. On a miscellaneous stock diet from July 12, 1928, to September 22, 1928.

September 18, 1928: Weighs 8.6 kilos.

September 22: In good condition; begins test diet No. 321.

October 30: At the end of a period of 38 days presented first signs of an attack of blacktongue, an injection of the mucosa of the floor of the mouth and cheeks. Weighs 8.7 kilos.

April 12, 1929: Found dead. Autopsy: Fatty degeneration of liver.

Dog 133.—Female. Whelped in the laboratory June 29, 1927, between which date and May 15, 1928, on a stock diet.

May 15, 1928: In good condition; weighs 8.1 kilos; begins test diet No. 321.

July 10: Slight suggestive reddening of the floor of the mouth. Mucosa of the cheeks slightly reddened and the mucosa of each side of the upper lip shows faint ill-defined, slightly reddened band which becomes continuous with reddening of the mucosa of the cheeks.

July 14: Lesions noted in the mouth have now faded and the mouth appears normal. Significance of the lesions is therefore doubtful.

September 15: At the end of a period of 123 days presented first signs of an attack of blacktongue, an injection of the floor of the mouth.

September 18: Weighs 6.6 kilos.

September 22: Moribund; gassed during the day. Autopsy: Blacktongue, fatty degeneration of liver.

Dog 140.—Male. Acquired April 6, 1928. On a stock diet from April 6 to May 15, 1928.

May 15, 1928: In good condition; weighs 7.6 kilos; begins test diet No. 321.

August 21: Weighs 7.1 kilos.

August 27: Found dead; no signs of blacktongue. Autopsy: Fatty degeneration of liver.

Summary.—Seven of the eight test animals developed blacktongue in 100, 19, 88, 123, 38, 31, and 38 days, respectively. The eighth animal (dog 52) died in 103 days from the beginning of the experiment without showing any definite signs of blacktongue, but presented a fatty degeneration of the liver at autopsy. The possibility that this dog might later have developed blacktongue can not be ruled out. It would therefore appear that the test diet was without appreciable preventive action, and thus that the salt pork contained very little of the blacktongue preventive.

Seven of the experimental animals died in the course of the experiment and presented at autopsy a fatty degeneration of the liver. The remaining animal (dog 114) developed blacktongue in 19 days from the beginning of the experiment and died in the acute attack. Five of the animals presenting fatty degeneration of the liver also showed the lesions of blacktongue at autopsy. In dogs 132 and 140 the acute attack of blacktongue had subsided and only the fatty degenerations were found at autopsy.

GREEN PEAS

In continuation of the study of vegetables a test of the blacktongue preventive value of dried green peas (*Pisum sativum*) was carried out as follows:

Experiment 3

Dried green peas (*Pisum sativum*) of the quality used for human consumption were ground and incorporated in diet No. 325, the composition of which is shown in Table 3. This diet is essentially the same as the diet used by Goldberger, Wheeler, Lillie, and Rogers (4) for the test of the blacktongue preventive value of cowpeas, the dried green peas quantitatively replacing the cowpeas. Thus the diet contained 300 grams of dried green peas per 2,400 calorie ration. A suitable caloric portion of this diet was offered daily to each of five test animals—dogs 84, 88; 89, 90, and 98. The significant details relating to each of the test animals are as follows:

Dog 84.—Male. Acquired March 2, 1925, between which date and April 11, 1928, served in a number of experiments and suffered one attack of blacktongue which began April 23, 1925. On a stock diet for reconditioning from April 11 to July 12, 1928.

July 10: Weighs 10.7 kilos.

July 12: In good condition; begins test diet No. 325.

February 2, 1929: At the end of a period of 205 days presented first signs of an attack of blacktongue, an injection of the floor of the mouth, cheeks, and soft palate.

February 5: Weighs 9.8 kilos.

April 28: Found dead. Autopsy: Blacktongue; fatty degeneration of liver observed microscopically.

Dog 88.—Male. Whelped in laboratory October 12, 1924, between which date and August 16, 1928, served in several experiments and suffered two attacks of blacktongue, the later one of which began April 27, 1927. On a stock diet for reconditioning from August 16, 1927, to July 12, 1928.

July 10, 1928: Weighs 5.9 kilos.

July 12: In good condition; begins test diet No. 325.

February 5, 1929: Weighs 5.5 kilos.

February 9: At the end of a period of 212 days presented the first signs of a definite attack of blacktongue, an injection of the floor of the mouth.

February 16: Found dead. Autopsy: Blacktongue.

Dog 89.—Female. Whelped in laboratory October 12, 1924, between which date and May 23, 1928, served in several experiments and suffered no attack of blacktongue. On a stock diet from May 23 to July 12, 1928.

July 10, 1928: Weighs 5.3 kilos.

July 12: In good condition; begins test diet No. 325.

January 2, 1929: Weighs 4.4 kilos.

January 5: At the end of a period of 177 days presented first signs of a definite attack of blacktongue, an injection of the floor of the mouth.

January 13: Dead. Blacktongue. Microscopic examination of the kidney showed slight fatty infiltration.

Dog 90.—Male. Whelped in the laboratory October 12, 1924, between which date and May 15, 1928, served in several experiments and suffered no attack of blacktongue. On a stock diet from May 15 to July 12, 1928.

July 10, 1928: Weighs 7.4 kilos.

July 12: In good condition. Begins test diet No. 325.

April 16, 1929: At the end of a period of 278 days presented first signs of an attack of blacktongue, an injection of the floor of the mouth; faint diffuse reddening of mucosa of cheeks and upper lip. Weighs 6.1 kilos.

April 25: Dead. Blacktongue.

Dog 98.—Male. Acquired January 18, 1926, between which date and May 15, 1928, served in two experiments without showing any manifestations of blacktongue. On stock diet from May 15 to July 12, 1928.

July 10, 1928: Weighs 7.1 kilos.

July 12: In good condition; begins test diet No. 325.

May 14, 1929: Weighs 7.8 kilos.

May 18: At the end of a period of 310 days presented first signs of an attack of blacktongue, an injection of the floor of the mouth and a reddened bandlike lesion on the mucosa of each side of the upper lip, and a large reddened patch on the ventral surface of the scrotum.

June 1: Dead. Autopsy: Blacktongue.

Summary.—All of the test animals developed blacktongue. These attacks began at the end of 205, 212, 177, 278, and 310 days, respectively. Thus, it would appear that the dried green peas in the quantities given exerted an appreciable delaying effect on the appearance of the disease. This shows that the dry green pea had an

appreciable preventive value. Considered in relation to the quantity of peas ingested per kilogram of body weight of dog, the preventive potency of the dried green pea must be rated as low and therefore as a relatively poor source of the blacktongue preventive factor.

All of the animals died in the course of the experiment and presented the lesions of blacktongue at autopsy. No fatty degenerations were observed on gross examination. Passed Asst. Surg. R. D. Lillie, to whom we are indebted for the microscopic examinations, reported fatty infiltration of the liver in dog 84.

HADDOCK

In a preceding paper (4) of this series a test of the blacktongue preventive value of canned salmon was reported, since it is one of the common canned meats in use in the southern part of the United States where the fresh meat supply is often restricted or absent. Canned haddock is another of the moderately priced canned meats available. It was therefore considered worth while to test its blacktongue preventive value. The following experiment was accordingly carried out:

One of the common commercial brands of canned, cooked, flaked haddock was used. The entire contents of the can were incorporated in a diet (No. 315), the composition of which is shown in Table 4. This diet is similar to the one used in the test of salmon by Goldberger, Wheeler, Lillie, and Rogers (4). It differs principally in containing a somewhat larger quantity of haddock (385 grams per 2,400 calorie ration as compared with 300 grams of salmon per 2,400 calorie ration). A portion of this diet having a sufficient caloric value was offered daily to each of six test animals—Dogs 63, 117, 129, 135, 136, and 137. The significant details relating to each of the test animals are as follows:

Dog 63.—Male. Whelped in laboratory November 4, 1923, and reared on miscellaneous stock diet. Up to January 24, 1928, served in a number of experiments and suffered several attacks of blacktongue, the latest of which began January 19, 1928.

January 24 to February 21, 1928, on stock diet.

February 21, 1928: In good condition; weighs 8.2 kilos; begins test diet No. 315.

October 15, 1929: Weighs 6 kilos.

October 21: At the end of a period of 20 months remains in good condition.

Has not presented any signs of blacktongue.

Dog 117.—Female. Acquired April 9, 1927, between which date and August 21, 1928, served in two experiments and suffered one attack of blacktongue, which began July 28, 1928. On a stock diet for reconditioning from August 21 to October 9, 1928.

October 9, 1928: In good condition; weighs 12.5 kilos; begins test diet No. 315.
January 23, 1929: Was observed having several convulsive seizures.

March 9: Animal had several clonic convulsive seizures, including muscles of mastication, which were followed by short period of apparent unconsciousness.

March 18: Animal appears to be very weak, but no evidence of paralysis or further convulsive seizures.

May 28: Again had attack of several convulsive seizures.

July 23: Weighs 10.1 kilos.

July 26: Found in coma and apparently dying. Gassed at 3:30 P. M. Autopsy: Fatty degeneration of liver. Animal did not present any signs of blacktongue.

Dog 129.—Female. Whelped in laboratory June 28, 1927. Reared on stock diet. Up to January 24, 1928, served in one experiment and suffered one attack of blacktongue, which began January 19, 1928. From January 24, 1928, to February 21, 1928, on stock diet.

February 21, 1928: In good condition; weighs 6.6 kilos; begins test diet No. 315.

October 15, 1929: Weighs 7.8 kilos.

October 21, 1929: Remains in good condition after 20 months; has not presented any signs of blacktongue.

Dog 135.—Female. Acquired January 5, 1928, from which date to February 21, 1928, on stock diet.

February 21, 1928: In good condition; weighs 5.4 kilos; begins test diet No. 315.

July 24: Weighs 5.5 kilos.

July 31: Found in comatose condition.

August 1: Found dead. Autopsy: Marked fatty degeneration of liver. Animal did not present any signs of blacktongue.

Dog 136.—Female. Acquired January 5, 1928. From January 6 to February 21, 1928, on stock diet.

February 21, 1928: In good condition; weighs 8.2 kilos; begins test diet No. 315.

October 15, 1929: Weighs 8.8 kilos.

October 21, 1929: At the end of a period of 20 months has not presented any signs of blacktongue; continues in good condition.

Dog 137.—Female. Acquired January 5, 1928. On stock diet from January 5 to February 21, 1928.

February 21, 1928: In good condition; weighs 8.6 kilos; begins test diet No. 315.

September 25: Animal appears somewhat lethargic; weighs 10.1 kilos.

September 26: Observed vomiting clear fluid containing flakes of bright red blood.

September 27: Found dead. Autopsy: Fatty degeneration of liver. Animal did not present any signs of blacktongue.

Summary.—None of the six test animals presented any recognizable evidence of typical blacktongue; however, three of the animals died in the course of the experiment. The outstanding lesion found at autopsy was a marked fatty degeneration of the liver, the cause of which is as yet undetermined.

In attempting to evaluate the results of this experiment it is necessary to keep in mind the possible significance of the deaths of three animals with fatty degeneration of the liver. Whether this represents some previously unrecognized deficiency or a condition resulting from a marginal quantity of the P-P factor can not be determined.

from this experiment. Therefore, although three of the animals remained in apparent good health for 20 months, it is impossible to state with certainty that canned haddock in the quantity used afforded complete protection. A preliminary report regarding the occurrence of fatty degenerations in various experimental diets, including those covered in this report, has already been made by Sebrell (6) and a further consideration of the subject will be presented in a later communication. It will, however, be noted in this connection that a variation in the amount of the P-P factor as the underlying cause of this condition, is not supported by these tests. Lard and salt pork appear to be the most deficient in this respect, dried green peas next in order and haddock the least of all, yet the fatty degeneration was conspicuous in all except the dried green pea diet. The possibility that this may be the result of some unrecognized deficiency or toxic condition associated with the lard, salt pork, and canned haddock diets must be kept in mind.

III. Summary and Conclusions

1. The blacktongue preventive potency of lard, salt pork, dried green peas, and canned haddock has been studied.

2. Lard and salt pork are poor sources of the blacktongue preventive.

3. Canned haddock contains the blacktongue preventive factor, and when used in relatively large proportion the clinical manifestations of blacktongue are prevented.

4. Dried green peas contain the blacktongue preventive, but in relatively small amount.

5. Fifty per cent or more of the test animals on the lard, salt pork, and haddock diets showed postmortem evidence of fatty degeneration of the liver.

TABLE 1.—*Composition of lard diet No. 302-A¹*

[Total calories, 2,400]

Articles of diet	Quantity	Nutrients		
		Protein	Fat	Carbo- hydrate
	<i>Grams</i>	<i>Grams</i>	<i>Grams</i>	<i>Grams</i>
Corn meal (whole, white) ²	310.0	23.3	13.0	204.0
Casein (leached) ³	80.0	72.5	.5	.....
Lard (pork fat).....	110.0	.....	110.0	.....
Cod-liver oil.....	10.0	.....	10.0	.....
Salt mixture ⁴	21.0	.....	.....	.....
Total nutrients.....	.....	95.8	133.5	204.0
Nutrients per 1,000 calories.....	.....	89.9	55.6	86.0

¹ The corn meal and salt mixture are stirred into water and cooked about 1½ hours. Then the other ingredients are well stirred in and the final weight of the mixture is brought to 2,400 grams with water (so that 1 gram represents 1 calorie). This finished mixture is served to the dog in suitable caloric portions.

² Whole white maize meal, not sifted.

³ Commercial casein leached for a week in daily changes of acidulated water, after McCollum (7).

⁴ After Osborne and Mendel (8).

TABLE 2.—Composition of salt pork diet No. 321¹

[Total calories, 2,400]

Articles of diet	Quantity	Nutrients		
		Protein	Fat	Carbo- hydrate
	<i>Grams</i>	<i>Grams</i>	<i>Grams</i>	<i>Grams</i>
Corn meal (whole, white) ²	310	23.3	13.0	204.0
Casein (leached) ³	65	58.9	.4	-----
Salt pork (edible portion) ⁴	153	12.9	110.5	-----
Cod-liver oil.....	10	-----	10.0	-----
Salt mixture ⁵	21	-----	-----	-----
Total nutrients.....	-----	95.1	133.9	204.0
Nutrients per 1,000 calories.....	-----	39.6	55.7	85.0

¹ The corn meal and salt pork are stirred into water and cooked about 1½ hours. Then the other ingredients are well stirred in and the final weight of the mixture is brought to 2,400 grams with water (so that 1 gram represents 1 calorie). This finished mixture is served to the dog in suitable caloric portions.

² Whole white maize meal, not sifted.

³ Commercial casein leached for a week in daily changes of acidulated water after McCollum (7).

⁴ For method of preparation see text.

⁵ After Osborne and Mendel (8).

TABLE 3.—Composition of dried green peas diet No. 325¹

[Total calories, 2,400]

Articles of diet	Quantity	Nutrients		
		Protein	Fat	Carbo- hydrate
	<i>Grams</i>	<i>Grams</i>	<i>Grams</i>	<i>Grams</i>
Dried peas (<i>Pisum sativum</i>).....	360	88.6	3.6	223.2
Casein (leached) ²	60	53.2	.3	-----
Sucrose.....	11	-----	-----	14.0
Cornstarch.....	90	-----	-----	81.0
Cottonseed oil.....	44	-----	44.0	-----
Cod-liver oil.....	15	-----	15.0	-----
Salt mixture ³	15	-----	-----	-----
Total nutrients.....	-----	141.8	62.9	318.2
Nutrients per 1,000 calories.....	-----	59.0	26.0	132.5

¹ The dried green peas (coarsely ground) and cornstarch are stirred into water and cooked about 1½ hours. Then the other ingredients are well stirred in and the final weight of the mixture is brought to 2,400 grams with water (so that 1 gram represents 1 calorie). This finished mixture is served to the dog in suitable caloric portions.

² Commercial casein leached for a week in daily changes of acidulated water, after McCollum (7).

³ After Osborne and Mendel (8).

TABLE 4.—Composition of haddock diet No. 315¹

[Total calories, 2,400]

Articles of diet	Quantity	Nutrients		
		Protein	Fat	Carbo- hydrate
	<i>Grams</i>	<i>Grams</i>	<i>Grams</i>	<i>Grams</i>
White corn meal (lab. sifted) ²	400	33.6	18.8	296.0
Cowpeas (<i>Vigna sinensis</i>).....	50	10.7	.7	30.4
Flaked haddock (canned) ³	385	82.4	.8	-----
Cane sugar.....	17	-----	-----	17.0
Cottonseed oil.....	25	-----	25.0	-----
Cod-liver oil.....	12	-----	12.0	-----
Sodium chloride.....	10	-----	-----	-----
Calcium carbonate.....	3	-----	-----	-----
Total nutrients.....	-----	126.7	57.3	343.4
Nutrients per 1,000 calories.....	-----	52.7	23.8	143.0

¹ The corn meal, cowpeas (coarsely ground), and sodium chloride are stirred into water and cooked about 1½ hours. Then the other ingredients are well stirred in and the final weight of the mixture is brought to 2,400 grams with water (so that 1 gram represents 1 calorie). This finished mixture is served to the dog in suitable caloric portions.

² Whole white maize meal sifted as for human consumption.

³ Entire contents of can are used.

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Ctenocephalides, NEW GENUS OF FLEAS, TYPE *Pulex canis*

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The generic name *Ctenocephalus* Kolenati, 1859, Jahresh. Mähr.-Schles. Ges. (for 1858), 65, applied to certain well-known fleas, is preoccupied by *Ctenocephalus* Hawle and Corda, 1847, Prodrum. Monogr. d. böhm. Trilobiten, 26, a well-known trilobite, and, under Article 34 of the International Rules, must be rejected as an absolute homonym; and, incidentally, it preoccupies *Ctenocephalus* Linstow, 1904, type *tiara*, nematode. (Compare also *Ctenocephalus* 1929 misprint for *Ctenodactylus*, rodent.)

To meet the nomenclatorial situation we herewith propose the new genus *Ctenocephalides*; type species *Pulex canis* Curtis, 1826, Brit. Entom., v. 3, no. 114, figs. A-E, 8, with the following diagnosis:

Frontal notch absent; eye present; labial palpi 4-segmented; club of antenna distinctly segmented only on the posterior side; two bristles on gena, an ocular and an oral. Genae and pronotum with ctenidia (combs); genal ctenidia horizontal, of about seven (rarely six) to ten or eleven rather long, pointed, and recurved spines. A strong incrassation from the antennal groove upward; upper margin of antennal groove in male with a patch of spiniform bristles (spinelets). Frontal ctenidium of 16-18 spines. One antepygial bristle on each side; spiniform bristles on inner side of hind coxae; fifth tarsal segment of all legs with four bristles on each side besides a thin and long subapical hair.

It will be noticed that the type species of the new genus is *canis*. The type species of *Ctenocephalus* Kolenati, 1859, is *novemdentatus*, subjective synonym of *canis*. Theoretically *Ctenocephalus* 1859 becomes a subjective synonym of *Ctenocephalides*, since *novemdentatus* is a subjective synonym of *canis*; for all practical purposes, however, *Ctenocephalus* 1859 is an unquestioned synonym of *Ctenocephalides*. To avoid having a synonym (*novemdentatus*) type species we propose a new genus instead of renaming the old genus. The new name is based upon the old name and the Greek suffix *ιδης* = *ides*, thus denoting the son (lineal descendant) of *Ctenocephalus* and preserving its place very closely in alphabetical file.

The new genus contains *canis* Curtis, 1826, and *felis* Bouché, 1835, both of them practically cosmopolitan insects which occur on man, *canis* having dogs (*Canis familiaris*) as type host and Great Britain as type locality, and *felis* having cats (*Felis domestica*) as type host and Europe as type locality. The new genus also contains the following less well-known species of fleas: *Ctenocephalides arabicus* (Jordan, 1925); *C. connatus* (Jordan, 1925); *C. conversus* (Jord. & Roths., 1913); *C. crataepus* (Jordan, 1925); *C. craterus* (Jord. & Roths., 1913); *C. felis orientis* (Jordan, 1925); *C. felis strongylus* (Jordan, 1925); *C. "leonis"* (Lyon, 1915); *C. rosmarus* (Roths., 1907); and *C. wollastoni* (Roths., 1908).

Weiss, 1920 (Bull. Soc. d'Hist. nat. de l'Afrique du Nord, v. 11 (9), Dec. 15, 1911), has proposed *Metapsylla* as a subgenus of *Pulex*.¹

Although he did not designate a type species for *Metapsylla*, it seems clear that he had especially in mind fleas occurring on *Erinaceus*, sensu lato, and of these he mentions two species, namely, *Pulex erinacei* and *Archaeopsylla polymorphus*, and it seems to us probable that he considered *canis* as consubgeneric with these.

Theoretical arguments can be advanced against the selection of any one of these three species as type. In view of the ambiguous status of *Metapsylla*, leading with certainty to differences of opinion and, therefore, nomenclatorial confusion, we feel that the name

¹ "Aux mois de mai et juin 1918, nous avons examiné plusieurs Hérissons de la Tunisie centrale (région de Mahdia et de la Chébbi). Ils étaient tous porteurs d'une Puce affine au *Pulex erinacei*, Bouché.

"Contrairement à ce que nous avons observé dans l'île de Djerba, le Hérisson (*Erinaceus algirus*, Duv.) a toujours été, dans le Sahel tunisien, trouvé uniquement infesté par *Archaeopsylla polymorphus* n. sp. qui est peut-être une forme de ségrégation.

"L'appareil génital ♂ est, à notre connaissance, inconnu chez *C. erinacei*, Bouché. Taschenberg signale à peine l'appareil génital externe.

"Les Pulicoides à dents aux joues et au pronotum parasitant le Hérisson montrent des caractères du genre *Pulex*. Nous indiquerons: forme et nombre des soies latérales du cinquième article tarsal des pattes postérieures, et présence d'un peigne à petites dents sur le côté interne et terminal des hanches postérieures.

"Nonobstant ces caractères héréditaires (*C. canis*, *P. canis*, Tasch. les présente également), ils ont été simultanément rangés dans le genre *Archaeopsylla* et le genre *Ctenocephalus*. Il nous paraît plus naturel de les ranger dans un sous-genre nouveau du genre *Pulex*, le sous-genre *Metapsylla*, qui rappelle une forme inconstante.

"Provisoirement, nous laissons notre nouvel Aphaniptère dans le genre *Archaeopsylla*, sous le nom d'*Archaeopsylla polymorphus*, qui rappelle un groupement de Pulicoides dont les spécimens sont différents les uns des autres, justifiant d'être défini comme espèce de passage entre les genres *Pulex* et *Ctenocephalus*."

should be sunk into absolute synonymy if this is anyway possible; and as no author (so far as we have record) seems to have cited *Metapsylla* since its original publication, no nomenclatorial hardship can be caused by a course of this kind.

In order to settle this question as definitely as possible, we here designate *Pulex erinacei* Bouché as type species of *Metapsylla*, thus sinking this generic name of 1920 as an absolute synonym of *Archaeopsylla* Dampf, 1908, type by original designation *Ceratophyllus erinacei* Leach in Curtis (*nomen nudum*) = *Pulex erinacei* Bouché.

To select *polymorphus* as type would cause subjective instead of objective synonymy.

To select *Ctenocephalus canis* as type would raise the question whether Weiss cited this species simply in anatomical comparison or as congeneric with *erinacei* and *polymorphus*. While we believe personally that he intended to place *canis* in *Metapsylla*, we admit the possibility of a difference of opinion on this point and therefore eliminate *canis* from consideration as type species.

COURT DECISION RELATING TO PUBLIC HEALTH

City held liable for damage resulting from sewage being forced back on to private property because of obstructed or inadequate sewer.—(Washington Supreme Court; Boyer et ux. v. City of Tacoma, 286 P. 659; decided Apr. 9, 1930.) The plaintiffs' property was connected with a sewer, which connection was required by the defendant city under the terms of a city ordinance. The connection conformed to the ordinance and was approved by the city's inspectors. Either because of some obstruction in, or the overtaxing of, the sewer, the sewage was forced back through the drainpipes of the plaintiffs into their basement. The sewer had been installed approximately 20 years before the flooding of the plaintiffs' premises and, when installed, it was undoubtedly of ample size. However, by reason of the growth of the territory served, it had become inadequate. No extraordinary storm conditions existed at the times when the premises were flooded.

An action was brought against the city and plaintiffs lost in the trial court. On appeal the supreme court stated the question as follows:

Is the city liable under circumstances such as these for sewage discharged on plaintiffs' property, they having been compelled by ordinance to connect with the sewer, the connection having been made in the manner approved by the city, and there being no negligence of any kind on their part?

The appellate court held that there was liability on the city's part, saying:

* * * The theory of all of the cases which we have examined which hold the city liable under circumstances such as we have outlined above seems to be that the property owner is required to connect with the sewer; that he is not permitted to dispose of his sewage in any other way than the one way provided by the city; that he has no power or authority to remove the cause, or to in any way remedy the defect from which his injury arises; that the city alone has the power and the means to remedy the defective sewer or to replace an inadequate sewer; that no person should be required to suffer an injury caused by an agency over which he has no control and over which the city has absolute control; and that if an injury is inflicted by such an agency, he should be properly compensated therefor. We think this is the better rule and is well supported by both reason and authority.

DEATHS DURING WEEK ENDED MAY 24, 1930

Summary of information received by telegraph from industrial insurance companies for the week ended May 24, 1930, and corresponding week of 1929. (From the Weekly Health Index, May 28, 1930, issued by the Bureau of the Census, Department of Commerce)

	Week ended May 24, 1930	Corresponding week, 1929
Policies in force.....	75, 792, 860	74, 200, 627
Number of death claims.....	14, 742	14, 256
Death claims per 1,000 policies in force, annual rate.....	10. 1	10. 0

Death from all causes in certain large cities of the United States during the week ended May 24, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929 (From the Weekly Health Index, May 28, 1930, issued by the Bureau of the Census, Department of Commerce)

City	Week ended May 24, 1930		Annual death rate per 1,000 corre- sponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended May 24, 1930 ¹
	Total deaths	Death rate ¹		Week ended May 24, 1930	Corre- sponding week, 1929	
Total (65 cities).....	7, 047	12. 3	12. 4	653	740	• 57
Akron.....	41			6	9	55
Albany.....	36	15. 6	17. 8	2	4	44
Atlanta.....	63	12. 9	13. 3	8	9	83
White.....	34			3	1	95
Colored.....	29	(⁵)	(⁵)	5	8	79
Baltimore.....	189	11. 9	12. 0	13	25	44
White.....	140			7	14	30
Colored.....	49	(⁵)	(⁵)	6	11	97
Birmingham.....	55	12. 9	14. 5	8	8	75
White.....	20			4	3	62
Colored.....	35	(⁵)	(⁵)	4	5	95
Boston.....	228	14. 9	13. 6	27	27	76
Bridgeport.....	28			3	4	51
Buffalo.....	165	15. 5	13. 5	12	14	53
Cambridge.....	24	9. 9	7. 0	2	0	37
Camden.....	26	10. 0	12. 3	5	5	91
Canton.....	27	12. 1	9. 4	0	4	0
Chicago.....	704	11. 6	12. 3	68	114	60
Fall River.....	25	9. 7	10. 5	3	1	69
Flint.....	34	11. 0	12. 3	6	4	70
Fort Worth.....	29	8. 9	8. 6	2	3	
White.....	25			1	0	
Colored.....	4	(⁵)	(⁵)	1	3	
Grand Rapids.....	43	13. 7	13. 3	7	5	107
Houston.....	79			11	6	
White.....	43			8	4	
Colored.....	36	(⁵)	(⁵)	3	2	

Deaths from all causes in certain large cities of the United States during the week ended May 24, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index, May 28, 1930, issued by the Bureau of the Census, Department of Commerce)—Continued

City	Week ended May 24, 1930		Annual death rate per 1,000 corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended May 24, 1930
	Total deaths	Death rate		Week ended May 24, 1930	Corresponding week, 1929	
Indianapolis.....	123	16.8	13.5	6	8	45
White.....	111			3	7	26
Colored.....	12	(¹)	(⁵)	3	1	161
Jersey City.....	67	10.8	11.2	7	6	61
Kansas City, Kans.....	20	8.8	13.7	3	4	71
White.....	13			2	2	53
Colored.....	7	(²)	(⁵)	1	2	217
Kansas City, Mo.....	88	11.7	13.9	7	8	54
Knoxville.....	26	12.9	12.9	1	5	23
White.....	20			1	5	26
Colored.....	6	(¹)	(⁵)	0	0	0
Los Angeles.....	286			18	17	55
Louisville.....	62	9.8	12.3	3	2	26
White.....	45			2	2	20
Colored.....	17	(⁵)	(⁵)	1	0	72
Lowell.....	20			4	4	95
Lynn.....	27	13.3	13.3	3	4	76
Memphis.....	80	21.9	18.1	4	7	48
White.....	28			0	3	0
Colored.....	52	(⁵)	(⁵)	4	4	135
Milwaukee.....	105	10.1	12.1	9	23	45
Minneapolis.....	78	8.9	9.5	5	5	32
Nashville.....	33	12.3	14.9	4	6	62
White.....	23			3	6	62
Colored.....	10	(⁵)	(⁵)	1	0	63
New Bedford.....	27			3	2	77
New Haven.....	41	11.4	8.9	1	0	19
New Orleans.....	139	16.9	16.5	14	13	81
White.....	69			5	6	44
Colored.....	70	(⁵)	(⁵)	9	7	151
Cincinnati.....	101			8	10	47
Cleveland.....	198	10.2	11.5	17	13	51
Columbus.....	78	13.6	12.4	10	10	98
Dallas.....	47	11.3	10.8	7	5	
White.....	30			4	3	
Colored.....	17	(⁵)	(⁵)	3	2	
Dayton.....	35	9.9	9.6	3	5	44
Denver.....	62	11.0	12.1	4	4	42
Des Moines.....	35	12.0	13.0	2	2	35
Detroit.....	322	12.2	12.4	34	14	53
Duluth.....	21	9.4	5.4	4	0	108
El Paso.....	34	15.0	15.0	8	3	
Erie.....	35			4	1	85
New York.....	1,510	13.1	12.5	171	148	72
Bronx Borough.....	202	11.1	11.1	20	17	47
Brooklyn Borough.....	534	12.1	11.1	65	63	69
Manhattan Borough.....	601	17.9	17.5	70	58	115
Queens Borough.....	136	8.3	6.8	14	7	41
Richmond Borough.....	37	12.8	17.0	2	3	37
Newark, N. J.....	127	14.0	11.0	6	8	31
Oakland.....	68	12.9	10.3	5	1	60
Oklahoma City.....	30			5	1	98
Omaha.....	49	11.5	12.9	3	4	34
Paterson.....	50	10.8	9.4	2	1	35
Philadelphia.....	423	10.7	11.8	34	29	50
Pittsburgh.....	175	13.5	13.9	14	25	51
Portland, Oreg.....	61			0	2	0
Providence.....	69	12.6	9.7	7	8	64
Richmond.....	53	14.2	12.9	1	6	15
White.....	32			0	1	0
Colored.....	21	(⁵)	(⁵)	1	5	44
Rochester.....	72	11.4	12.9	6	5	53
St. Louis.....	215	13.2	14.0	11	19	36
St. Paul.....	56			2	7	20
Salt Lake City.....	29	11.0	14.4	4	8	63
San Antonio.....	67	16.0	19.6	13	19	
San Diego.....	45			6	2	124
San Francisco.....	167	14.9	13.9	5	8	36
Schenectady.....	23	12.9	11.7	3	2	94
Seattle.....	72	9.8	8.6	2	3	20

Footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended May 24, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index, May 28, 1930, issued by the Bureau of the Census, Department of Commerce)—Continued

City	Week ended May 24, 1930		Annual death rate per 1,000 corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended May 24, 1930
	Total deaths	Death rate		Week ended May 24, 1930	Corresponding week, 1929	
Somerville.....	18	9.1	6.1	1	1	33
Spokane.....	23	11.0	11.0	2	0	52
Springfield, Mass.....	33	11.5	16.0	4	3	63
Syracuse.....	53	13.9	15.7	6	6	74
Tacoma.....	25	11.8	9.9	4	1	103
Toledo.....	54	9.0	13.8	3	5	27
Trenton.....	31	11.6	13.5	1	2	19
Utica.....	29	14.5	17.0	3	6	85
Washington, D. C.....	132	12.5	12.8	11	12	64
White.....	85			5	8	43
Colored.....	47	(¹)	(²)	6	4	106
Waterbury.....	15			0	3	0
Wilmington, Del.....	23	9.3	10.1	3	1	68
Worcester.....	50	13.2	12.9	1	1	13
Yonkers.....	23	9.9	6.9	3	4	72
Youngstown.....	35	10.5	8.4	5	4	78

¹ Annual rate per 1,000 population.

² Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.

³ Data for 73 cities.

⁴ Deaths for week ended Friday.

⁵ In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 28; Nashville, 30; New Orleans, 26; Richmond, 82, and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended May 24, 1930, and May 25, 1929

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended May 24, 1930, and May 25, 1929

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended May 24, 1930	Week ended May 25, 1929	Week ended May 24, 1930	Week ended May 25, 1929	Week ended May 24, 1930	Week ended May 25, 1929	Week ended May 24, 1930	Week ended May 25, 1929
New England States:								
Maine.....	2	2	2	3	49	77	0	0
New Hampshire.....		1			38	63	0	0
Vermont.....					50	1	0	0
Massachusetts.....	44	87	4	7	1,441	573	11	6
Rhode Island.....	3	8			29	79	0	0
Connecticut.....	9	39	4	12	50	335	3	2
Middle Atlantic States:								
New York.....	121	317	15	13	2,302	1,123	10	27
New Jersey.....	80	133	3	6	1,155	306	4	8
Pennsylvania.....	90	150			1,356	1,801	9	11
East North Central States:								
Ohio.....	26	31	14	4	628	931	1	10
Indiana.....	9	3			169	600	4	1
Illinois.....	144	220	5	72	610	2,222	6	18
Michigan.....	64	218	5	11	1,514	921	18	62
Wisconsin.....	12	23	9	10	598	1,423	0	6
West North Central States:								
Minnesota.....	14	15	2		185	649	1	0
Iowa.....	9	1			293	96	2	2
Missouri.....	28	52	4	4	63	163	8	15
North Dakota.....	6	19			19	88	0	0
South Dakota.....	2	1				88	0	0
Nebraska.....	15	13			137	317	0	1
Kansas.....	5	5			512	807	0	3
South Atlantic States:								
Delaware.....	1	2			7	8	0	0
Maryland ¹	23	13	5	17	73	58	1	1
District of Columbia.....	7	10	1		40	39	0	0
Virginia.....								
West Virginia.....	5	12	9	13	70	275	1	0
North Carolina.....	26	20	5		48	20	5	2
South Carolina.....	15	12	177	234	43	6	1	0
Georgia.....	12	1	12	21	131	11	3	1
Florida.....	5	3	2		210	85	0	0

¹ New York City only.

² Week ended Friday.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended May 24, 1930, and May 25, 1929—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended May 24, 1930	Week ended May 25, 1929	Week ended May 24, 1930	Week ended May 25, 1929	Week ended May 24, 1930	Week ended May 25, 1929	Week ended May 24, 1930	Week ended May 25, 1929
East South Central States.								
Kentucky.....	3	4	—	—	65	44	1	0
Tennessee.....	6	5	13	21	262	30	9	1
Alabama.....	8	15	18	15	116	123	9	2
Mississippi.....	7	3	—	—	—	—	1	0
West South Central States.								
Arkansas.....	2	2	37	25	69	12	2	1
Louisiana.....	9	10	4	7	39	72	1	6
Oklahoma ¹	9	4	17	40	265	22	2	2
Texas.....	34	18	6	37	232	281	0	0
Mountain States								
Montana.....	—	—	—	—	20	101	0	2
Idaho.....	—	—	—	—	21	3	2	3
Wyoming.....	2	1	—	—	74	76	0	2
Colorado.....	10	8	—	—	749	22	1	4
New Mexico.....	4	5	—	2	31	4	0	1
Arizona.....	3	—	3	—	108	1	1	4
Utah.....	3	1	4	4	327	3	2	5
Pacific States								
Washington.....	3	15	—	—	743	308	3	3
Oregon.....	3	3	9	20	81	159	0	1
California.....	54	50	9	28	2, 221	129	4	18

Division and State	Polioomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended May 24, 1930	Week ended May 25, 1929	Week ended May 24, 1930	Week ended May 25, 1929	Week ended May 24, 1930	Week ended May 25, 1929	Week ended May 24, 1930	Week ended May 25, 1929
New England States:								
Maine.....	0	0	14	16	0	0	4	2
New Hampshire.....	0	0	14	13	0	0	0	2
Vermont.....	0	0	3	9	0	0	0	1
Massachusetts.....	0	2	239	245	9	24	3	8
Rhode Island.....	0	0	15	7	0	0	1	1
Connecticut.....	0	0	63	58	0	4	1	4
Middle Atlantic States:								
New York.....	0	1	433	438	8	5	14	16
New Jersey.....	0	0	205	140	0	0	6	6
Pennsylvania.....	1	0	308	420	0	0	10	17
East North Central States.								
Ohio.....	1	0	154	152	98	82	9	5
Indiana.....	1	0	110	230	145	77	4	2
Illinois.....	2	3	375	400	81	123	6	13
Michigan.....	0	1	188	478	83	52	5	4
Wisconsin.....	1	1	196	153	0	21	0	6
West North Central States:								
Minnesota.....	0	1	83	97	13	6	4	2
Iowa.....	0	0	33	135	90	47	0	0
Missouri.....	0	0	105	53	38	35	0	16
North Dakota.....	0	1	15	37	19	13	0	2
South Dakota.....	0	0	8	17	21	88	0	0
Nebraska.....	0	0	46	70	52	120	0	12
Kansas.....	0	0	51	111	55	70	3	3
South Atlantic States:								
Delaware.....	0	0	11	4	0	1	0	0
Maryland ¹	0	0	56	99	0	0	6	6
District of Columbia.....	0	0	16	10	0	0	1	0
Virginia.....	1	—	—	—	—	—	—	—
West Virginia.....	0	0	20	10	43	11	10	7
North Carolina.....	0	1	23	17	3	4	14	7
South Carolina.....	0	1	6	5	5	4	24	29
Georgia.....	0	0	18	9	0	0	8	28
Florida.....	2	1	0	5	0	1	3	3

¹ Week ended Friday.

¹ Exclusive of Oklahoma City and Tulsa.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended May 24, 1930, and May 25, 1929—Continued

Division and State	Polio-myelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended May 24, 1930	Week ended May 25, 1929	Week ended May 24, 1930	Week ended May 25, 1929	Week ended May 24, 1930	Week ended May 25, 1929	Week ended May 24, 1930	Week ended May 25, 1929
East South Central States:								
Kentucky.....	0	0	38	73	0	9	4	3
Tennessee.....	0	0	38	21	11	7	11	14
Alabama.....	2	1	12	8	3	2	9	19
Mississippi.....	0	0	7	3	3	2	10	9
West South Central States:								
Arkansas.....	0	0	5	8	4	2	2	6
Louisiana.....	3	0	14	25	2	3	13	7
Oklahoma ¹	0	0	19	16	96	36	4	4
Texas.....	0	0	28	55	38	57	1	7
Mountain States:								
Montana.....	0	0	32	14	2	9	0	0
Idaho.....	0	1	5	4	0	4	1	1
Wyoming.....	0	0	2	14	11	7	0	0
Colorado.....	0	0	19	15	11	23	3	1
New Mexico.....	0	0	7	3	14	6	3	0
Arizona.....	1	0	8	5	5	3	5	6
Utah ²	0	0	5	9	2	1	0	0
Pacific States:								
Washington.....	0	0	37	42	44	64	1	1
Oregon.....	0	0	26	15	23	20	0	1
California.....	11	3	109	409	64	66	18	7

¹ Week ended Friday.² Exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week.

State	Menin- gococ- cus menin- gitis	Diph- theria	Influ- enza	Ma- laria	Meas- les	Pella- gra	Polio- mye- litis	Scarlet fever	Small- pox	Ty- phoid fever
<i>March, 1930</i>										
Delaware.....	2	15	5	-----	45	-----	0	56	0	4
<i>April, 1930</i>										
Idaho.....	15	4	-----	-----	310	-----	0	33	26	5
Illinois.....	56	605	63	7	3,306	-----	2	2,224	656	26
Iowa.....	27	30	-----	-----	1,847	-----	1	331	469	2
Missouri.....	69	138	66	19	756	1	0	653	436	24
North Carolina.....	26	118	135	-----	175	143	2	164	86	10
Oklahoma ¹	9	34	141	115	1,153	59	0	108	427	18

¹ Exclusive of Oklahoma City and Tulsa.

<i>March, 1930</i>		Chicken pox—Continued.		Cases
Delaware:	Cases	Iowa.....	-----	295
Chicken pox.....	44	Missouri.....	-----	415
Mumps.....	1	North Carolina.....	-----	1,067
Whooping cough.....	14	Oklahoma ¹	-----	68
<i>April, 1930</i>		Dysentery.....		
Actinomycosis:		Illinois.....	-----	13
Illinois.....	1	Oklahoma ¹	-----	4
Chicken pox:		German measles:		
Idaho.....	40	Illinois.....	-----	261
Illinois.....	1,325	Iowa.....	-----	2
		North Carolina.....	-----	105

¹ Exclusive of Oklahoma City and Tulsa.

Lead poisoning:	Cases	Tetanus:	Cases
Illinois.....	17	Illinois.....	2
Lethargic encephalitis:		Missouri.....	1
Illinois.....	13	Oklahoma ¹	2
Mumps:		Trachoma:	
Idaho.....	70	Illinois.....	5
Illinois.....	1,130	Missouri.....	31
Iowa.....	150	Oklahoma ¹	11
Missouri.....	298	Trench mouth:	
Oklahoma ¹	15	Oklahoma.....	3
Ophthalmia neonatorum:		Tularaemia:	
Illinois.....	42	Illinois.....	2
Missouri.....	4	North Carolina.....	1
North Carolina.....	1	Undulant fever:	
Paratyphoid fever.		Illinois.....	6
Illinois.....	2	Iowa.....	12
North Carolina.....	5	Missouri.....	10
Puerperal fever:		Vincent's angina	
Illinois.....	6	Illinois.....	1
Rabies in animals:		Oklahoma ¹	3
Illinois.....	4	Whooping cough:	
Missouri.....	4	Idaho.....	21
Rabies in man:		Illinois.....	765
Illinois.....	1	Iowa.....	72
Rocky Mountain spotted or tick fever:		Missouri.....	181
Idaho.....	2	North Carolina.....	1,342
Septic sore throat:		Oklahoma ¹	124
Illinois.....	8		
Missouri.....	20		
North Carolina.....	3		
Oklahoma ¹	24		

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 95 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 31,690,000. The estimated population of the 89 cities reporting deaths is more than 30,180,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended May 17, 1930, and May 18, 1929

	1930	1929	Estimated expectancy
<i>Cases reported</i>			
Diphtheria:			
46 States.....	888	1,272	-----
95 cities.....	464	748	806
Measles:			
46 States.....	19,401	14,413	-----
95 cities.....	7,338	5,381	-----
Meningococcus meningitis:			
46 States.....	175	303	-----
95 cities.....	78	159	-----
Polomyelitis:			
47 States.....	38	33	-----
Scarlet fever.			
46 States.....	3,470	4,297	-----
95 cities.....	1,397	1,754	1,214
Smallpox:			
46 States.....	1,302	954	-----
95 cities.....	133	57	70
Typhoid fever:			
46 States.....	238	260	-----
95 cities.....	51	53	45
<i>Deaths reported</i>			
Influenza and pneumonia:			
89 cities.....	649	647	-----
Smallpox:			
89 cities.....	0	0	-----

¹ Exclusive of Oklahoma City and Tulsa.

City reports for week ended May 17, 1930

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1921 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND								
Maine:								
Portland.....	5	1	0	-----	0	5	34	3
New Hampshire:								
Concord.....	0	0	0	-----	0	0	0	1
Manchester.....	0	1	0	-----	0	0	0	2
Nashua.....	0	1	0	-----	0	0	0	0
Vermont:								
Barre.....	0	0	0	-----	0	6	0	0
Massachusetts:								
Boston.....	41	38	31	1	0	496	65	23
Fall River.....	1	3	2	-----	0	2	4	2
Springfield.....	12	2	2	-----	0	1	8	1
Worcester.....	25	3	0	-----	0	240	0	1
Rhode Island:								
Pawtucket.....	8	0	2	-----	0	0	0	2
Providence.....	12	6	3	-----	0	0	1	5
Connecticut:								
Bridgeport.....	1	5	3	-----	0	1	1	4
Hartford.....	5	5	1	-----	0	1	0	4
New Haven.....	9	1	0	-----	0	10	10	0
MIDDLE ATLANTIC								
New York:								
Buffalo.....	25	10	6	-----	0	20	0	21
New York.....	203	260	92	16	12	1,936	153	177
Rochester.....	9	8	1	-----	0	28	1	6
Syracuse.....	10	3	0	-----	0	16	39	5
New Jersey:								
Camden.....	7	7	0	-----	1	4	1	5
Newark.....	35	14	24	2	0	281	32	11
Trenton.....	2	2	7	1	0	9	0	1
Pennsylvania:								
Philadelphia.....	13	58	12	-----	1	359	126	19
Pittsburgh.....	53	16	21	-----	1	292	29	27
Reading.....	15	2	0	-----	0	4	4	1
Scranton.....	4	3	0	-----	0	0	0	0
EAST NORTH CENTRAL								
Ohio:								
Cincinnati.....	6	6	5	-----	0	92	11	8
Cleveland.....	115	22	7	4	1	7	72	14
Columbus.....	17	3	4	3	2	103	3	2
Toledo.....	50	3	0	2	2	38	36	4
Indiana:								
Fort Wayne.....	1	1	0	-----	0	0	0	0
Indianapolis.....	43	3	1	-----	0	16	10	8
South Bend.....	1	1	-----	-----	-----	-----	-----	-----
Terre Haute.....	6	0	0	-----	0	52	1	1
Illinois:								
Chicago.....	159	83	87	3	2	44	86	39
Springfield.....	1	0	1	-----	0	2	1	0
Michigan:								
Detroit.....	69	43	31	5	2	775	87	23
Flint.....	22	3	1	-----	0	191	6	2
Grand Rapids.....	5	1	8	-----	0	0	0	0

City reports for week ended May 17, 1930—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST NORTH CENTRAL—contd.								
Wisconsin:								
Kenosha.....	2	0	0	-----	0	0	0	0
Madison.....	4	1	1	-----	0	24	1	1
Milwaukee.....	122	11	1	-----	0	19	91	9
Racine.....	1	1	0	-----	0	10	0	0
Superior.....	11	1	0	-----	0	0	0	1
WEST NORTH CENTRAL								
Minnesota:								
Duluth.....	3	0	0	-----	0	22	0	2
Minneapolis.....	95	14	2	-----	1	39	42	6
St. Paul.....	38	9	1	-----	0	2	12	5
Iowa:								
Des Moines.....	1	1	1	-----	-----	2	1	-----
Sioux City.....	-----	0	-----	-----	-----	-----	-----	-----
Waterloo.....	20	0	1	-----	-----	2	2	-----
Missouri:								
Kansas City.....	23	3	2	-----	0	10	4	15
St. Joseph.....	2	0	0	-----	0	0	0	0
St. Louis.....	47	36	25	1	-----	22	16	-----
North Dakota:								
Fargo.....	4	0	0	-----	0	0	27	1
Grand Forks.....	0	0	0	-----	-----	0	1	-----
South Dakota:								
Aberdeen.....	2	0	0	-----	-----	42	1	-----
Nebraska:								
Omaha.....	7	2	7	-----	0	36	1	4
Kansas:								
Topeka.....	12	1	0	-----	0	126	24	1
Wichita.....	7	1	0	-----	0	78	0	2
SOUTH ATLANTIC								
Delaware:								
Wilmington.....	0	1	1	-----	0	5	1	5
Maryland:								
Baltimore.....	161	21	12	8	4	43	10	32
Cumberland.....	8	0	0	-----	0	0	0	1
Frederick.....	2	0	0	-----	0	0	0	3
District of Columbia:								
Washington.....	38	11	4	-----	0	47	0	8
Virginia:								
Lynchburg.....	4	0	1	-----	0	38	10	2
Norfolk.....	44	1	0	-----	0	16	80	2
Richmond.....	4	1	3	-----	3	1	1	4
Roanoke.....	5	1	0	-----	0	258	0	2
West Virginia:								
Charleston.....	15	0	2	-----	0	1	3	4
Wheeling.....	7	1	0	-----	0	9	0	2
North Carolina:								
Raleigh.....	4	0	1	-----	0	0	0	0
Wilmington.....	0	0	0	-----	0	0	0	1
Winston-Salem.....	6	0	0	-----	0	20	5	1
South Carolina:								
Charleston.....	0	0	0	8	0	0	0	1
Columbia.....	1	1	0	-----	0	0	1	5
Georgia:								
Atlanta.....	2	1	0	1	2	63	3	9
Brunswick.....	1	0	0	-----	0	0	1	0
Savannah.....	1	0	3	3	0	5	0	2
Florida:								
Miami.....	6	0	3	-----	0	12	7	2
St. Petersburg.....	-----	0	-----	-----	0	-----	-----	1
Tampa.....	8	1	0	-----	1	123	7	8
EAST SOUTH CENTRAL								
Kentucky:								
Covington.....	0	0	0	-----	0	1	0	2
Tennessee:								
Memphis.....	27	1	1	-----	3	2	9	1
Nashville.....	10	0	1	-----	1	21	0	4

City reports for week ended May 17, 1930—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneu- monia, deaths reported
		Cases, estimated expect- ancy	Cases reported	Cases reported	Deaths reported			
EAST SOUTH CEN- TRAL—continued								
Alabama:								
Birmingham.....	5	2	1	-----	2	9	3	6
Mobile.....	0	0	3	-----	0	2	1	0
Montgomery.....	0	0	0	-----		25	2	-----
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith.....	0	0	0	-----		46	0	-----
Little Rock.....	2	0	0	-----	0	2	0	-----
Louisiana:								
New Orleans.....	0	7	9	1	0	3	0	10
Shreveport.....	3	0	0	-----	0	11	5	0
Oklahoma:								
Oklahoma City..	0	2	2	1	1	5	0	6
Tulsa.....	14	1	0	-----		27	2	-----
Texas:								
Dallas.....	3	3	5	1	0	141	4	4
Fort Worth.....	11	2	1	10	-----	0	1	0
Galveston.....	0	0	0	-----	0	0	0	0
Houston.....	4	3	5	-----	0	2	0	5
San Antonio.....	0	2	0	-----	1	6	0	3
MOUNTAIN								
Montana:								
Billings.....	0	0	0	-----	0	5	0	0
Great Falls.....	1	1	0	-----	0	0	11	0
Helena.....	0	0	0	-----	0	0	0	1
Missoula.....	0	0	0	-----	0	0	0	0
Idaho:								
Boise.....	2	1	0	-----	0	0	2	1
Colorado:								
Denver.....		9	-----	-----	-----	-----	-----	-----
Pueblo.....	7	1	0	-----	0	13	102	1
New Mexico:								
Albuquerque.....	10	0	0	-----	0	7	11	2
Arizona:								
Phoenix.....	0	0	0	-----	0	14	0	4
Utah:								
Salt Lake City...	9	3	0	-----	0	249	4	0
Nevada:								
Reno.....	0	0	0	-----	0	3	1	0
PACIFIC								
Washington:								
Seattle.....	42	3	0	-----	-----	238	80	-----
Spokane.....	15	2	1	-----	-----	0	0	-----
Tacoma.....	3	1	0	-----	0	143	3	3
Oregon:								
Portland.....	16	6	4	-----	0	46	10	3
Salem.....	11	0	0	-----	0	4	0	0
California:								
Los Angeles.....	44	34	12	22	3	317	84	8
Sacramento.....	8	2	0	1	1	24	24	2
San Francisco.....	29	15	8	4	1	103	75	6

City reports for week ended May 17, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culosis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
NEW ENGLAND											
Maine:											
Portland	2	2	0	0	0	3	0	0	0	0	20
New Hampshire:											
Concord	0	0	0	0	0	0	0	0	0	0	8
Manchester	3	0	0	0	0	0	0	0	0	0	19
Nashua	0	0	0	0	0	0	0	0	0	0	-----
Vermont:											
Barre	0	0	0	0	0	1	0	0	0	0	1
Massachusetts:											
Boston	64	50	0	0	0	23	2	4	0	36	223
Fall River	4	7	0	0	0	1	0	0	0	0	34
Springfield	7	5	0	0	0	5	0	0	0	7	35
Worcester	7	8	0	0	0	1	0	0	0	24	33
Rhode Island:											
Pawtucket	2	2	0	0	0	0	0	0	0	6	13
Providence	9	15	0	0	0	2	0	0	0	13	63
Connecticut:											
Bridgeport	10	9	0	0	0	2	0	0	0	0	28
Hartford	4	2	0	0	0	1	0	0	0	2	47
New Haven	5	8	0	0	0	2	0	0	0	4	44
MIDDLE ATLANTIC											
New York:											
Buffalo	24	32	0	0	0	7	1	1	0	20	149
New York	263	238	0	0	0	102	9	11	0	85	1,438
Rochester	11	18	0	0	0	1	0	1	0	0	63
Syracuse	9	7	0	0	0	1	0	0	0	40	39
New Jersey:											
Camden	5	2	0	0	0	1	0	0	0	1	34
Newark	28	24	0	0	0	7	0	0	0	10	93
Trenton	3	11	0	0	0	5	0	1	0	0	41
Pennsylvania:											
Philadelphia	90	122	0	0	0	41	2	1	0	13	507
Pittsburgh	31	31	0	0	0	9	0	0	0	38	165
Reading	4	4	0	0	0	3	0	0	0	3	38
Scranton	2	5	0	0	0	0	1	0	0	4	-----
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	16	18	2	3	0	10	0	0	0	3	113
Cleveland	37	56	0	0	0	13	2	0	0	64	197
Columbus	8	3	2	2	0	7	0	0	0	5	80
Toledo	10	20	1	9	0	5	0	0	0	5	69
Indiana:											
Fort Wayne	3	1	2	2	0	0	0	0	0	0	18
Indianapolis	13	24	8	8	0	0	1	0	0	13	-----
South Bend	4	0	0	0	0	0	0	0	0	0	15
Terre Haute	2	4	0	0	0	0	0	0	0	1	-----
Illinois:											
Chicago	109	219	2	1	0	37	2	3	0	63	577
Springfield	4	3	0	0	0	0	1	0	0	3	18
Michigan:											
Detroit	104	99	1	3	0	23	2	0	0	80	276
Flint	7	11	2	2	0	0	0	0	0	15	27
Grand Rapids	8	12	0	1	0	0	0	0	0	5	31
Wisconsin:											
Kenosha	1	2	0	0	0	2	0	0	0	8	12
Madison	2	3	0	0	0	0	0	0	0	10	7
Milwaukee	4	27	0	1	0	8	0	0	0	39	131
Racine	27	4	0	0	0	0	0	0	0	4	10
Superior	2	4	0	0	0	0	0	0	0	0	13
WEST NORTH CENTRAL											
Minnesota:											
Duluth	7	1	0	0	0	0	0	0	0	6	31
Minneapolis	37	16	2	0	0	4	0	0	0	5	193
St. Paul	22	6	0	0	0	1	0	0	0	20	49

City reports for week ended May 17, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culosis, deaths reported	Typhoid fever			Whoop- ing cough, cases reported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
WEST NORTH CENTRAL—continued											
Iowa:											
Des Moines.....	5	9	2	21	-----	-----	0	0	-----	0	85
Sioux City.....	1	-----	0	-----	-----	-----	0	0	-----	-----	-----
Waterloo.....	2	0	1	23	-----	-----	0	0	-----	1	-----
Missouri:											
Kansas City.....	11	13	1	1	0	6	1	3	0	8	98
St. Joseph.....	3	9	1	3	0	0	0	0	0	0	25
St. Louis.....	29	63	2	5	0	14	1	1	1	15	166
North Dakota:											
Fargo.....	1	1	0	0	0	1	0	0	0	2	10
Grand Forks.....	1	0	1	0	-----	-----	0	0	-----	0	-----
South Dakota:											
Aberdeen.....	0	0	0	10	-----	-----	0	0	-----	6	-----
Nebraska:											
Omaha.....	3	5	3	25	0	5	0	0	0	1	44
Kansas:											
Topeka.....	2	1	0	3	0	0	0	0	0	13	8
Wichita.....	3	14	1	0	0	0	0	0	0	3	29
SOUTH ATLANTIC											
Delaware:											
Wilmington.....	4	10	0	0	0	0	0	0	0	1	28
Maryland:											
Baltimore.....	33	51	0	0	0	17	2	0	0	22	224
Cumberland.....	0	0	0	0	0	0	0	0	0	0	11
Frederick.....	0	0	0	0	0	0	0	0	0	0	8
District of Col.:											
Washington.....	21	9	1	0	0	10	0	2	0	6	132
Virginia:											
Lynchburg.....	0	0	0	0	0	2	1	0	0	4	18
Norfolk.....	1	0	0	0	0	2	0	0	0	1	-----
Richmond.....	3	2	0	0	0	2	0	1	0	1	60
Roanoke.....	0	0	0	0	0	2	0	0	0	1	21
West Virginia:											
Charleston.....	1	1	1	0	0	0	0	0	0	10	12
Wheeling.....	2	0	0	0	0	0	1	0	0	9	17
North Carolina:											
Raleigh.....	0	0	0	2	0	0	0	1	0	2	12
Wilmington.....	0	0	1	0	0	1	0	0	0	7	13
Winston-Salem.....	0	0	1	0	0	4	0	0	0	4	15
South Carolina:											
Charleston.....	0	0	0	0	0	3	1	0	0	3	20
Columbia.....	0	0	0	0	0	0	1	0	0	3	19
Georgia:											
Atlanta.....	4	13	5	0	0	3	1	0	0	8	74
Brunswick.....	0	0	0	0	0	0	0	0	0	0	5
Savannah.....	1	0	1	0	0	4	1	1	2	0	40
Florida:											
Miami.....	0	1	0	0	0	0	0	0	0	0	22
St. Petersburg.....	0	-----	0	-----	0	2	0	-----	0	-----	19
Tampa.....	1	0	0	0	0	2	1	2	0	0	22
EAST SOUTH CENTRAL											
Kentucky:											
Covington.....	1	1	0	2	0	0	0	0	0	0	18
Tennessee:											
Memphis.....	6	2	1	0	0	8	1	7	0	9	88
Nashville.....	2	1	1	10	0	3	0	0	0	4	44
Alabama:											
Birmingham.....	1	0	3	0	-----	5	1	0	0	4	69
Mobile.....	0	0	0	0	-----	2	0	0	0	0	23
Montgomery.....	0	0	0	0	-----	-----	0	0	-----	0	-----
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith.....	0	0	0	0	-----	-----	0	0	-----	2	-----
Little Rock.....	0	0	0	0	0	1	1	0	0	0	-----

City reports for week ended May 17, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
WEST SOUTH CENTRAL—continued											
Louisiana:											
New Orleans.....	7	8	1	0	0	15	2	10	0	9	164
Shreveport.....	0	0	1	0	0	2	0	0	0	2	37
Oklahoma:											
Oklahoma City.....	0	6	2	20	0	1	0	1	0	0	34
Tulsa.....	2	2	2	4			0	0		11	
Texas:											
Dallas.....	3	8	2	0	0	2	1	0	0	4	55
Fort Worth.....	1	2	5	3	0	0	1	0	0	0	
Galveston.....	0	0	0	0	0	0	0	0	0	0	12
Houston.....	2	4	1	5	0	3	1	0	0	0	66
San Antonio.....	0	1	0	1	0	9	1	0	0	0	78
MOUNTAIN											
Montana:											
Billings.....	0	2	0	0	0	0	0	0	0	0	4
Great Falls.....	1	6	1	0	0	0	0	0	0	0	9
Helena.....	0	0	0	0	0	0	0	0	0	0	1
Missoula.....	1	0	0	1	0	0	0	0	0	0	7
Idaho:											
Boise.....	0	1	1	1	0	1	0	0	0	1	8
Colorado:											
Denver.....	11		1				0				
Pueblo.....	1	0	0	0	0	0	0	0	0	7	9
New Mexico:											
Albuquerque.....	0	2	0	0	0	3	0	0	0	0	13
Arizona:											
Phoenix.....	1	1	0	2	0	3	0	0	0	0	18
Utah:											
Salt Lake City.....	2	0	1	0	0	2	0	0	0	47	33
Nevada:											
Reno.....	0	1	0	5	0	0	0	0	0	0	6
PACIFIC											
Washington:											
Seattle.....	7	8	3	0			1	0		16	
Spokane.....	4	0	6	19			0	0		12	
Tacoma.....	3	4	3	1	0	0	0	0	0	15	28
Oregon:											
Portland.....	5	0	7	14	0	1	0	2	0	9	76
Salem.....	0	0	1	0	0	0	1	0	0	8	
California:											
Los Angeles.....	29	33	5	2	0	19	1	0	0	38	261
Sacramento.....	3	0	0	0	0	0	1	0	0	0	27
San Francisco.....	19	18	1	1	0	10	1	1	0	6	164

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Polio-myelitis (infantile paralysis)			
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths	
NEW ENGLAND										
Massachusetts:										
Boston.....	6	1	0	0	0	0	0	3		1
Springfield.....	0	0	1	1	0	0	0	0		0
Worcester.....	1	0	0	0	0	0	0	0		0
MIDDLE ATLANTIC										
New York:										
New York.....	15	9	3	1	0	0	1	0		0
Pennsylvania:										
Philadelphia.....	3	2	0	0	0	0	1	0		0
Pittsburgh.....	1	1	0	1	0	0	0	0		0

City reports for week ended May 17, 1930—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
EAST NORTH CENTRAL									
Ohio:									
Cleveland.....	2	0	1	1	0	0	0	0	0
Indiana:									
Indianapolis.....	4	2	0	0	0	0	0	0	0
Illinois:									
Chicago.....	6	2	1	0	0	0	0	0	0
Michigan:									
Detroit.....	12	10	1	0	0	0	0	0	0
Flint.....	1	1	0	0	0	0	0	0	0
Grand Rapids.....	0	0	0	1	0	0	0	0	0
Wisconsin:									
Milwaukee.....	2	0	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
Minneapolis.....	1	0	0	0	0	0	0	0	0
St. Paul.....	1	0	0	0	0	0	0	0	0
Iowa:									
Waterloo.....	1	1	0	0	0	0	0	0	0
Missouri:									
Kansas City.....	2	1	0	0	0	0	0	0	0
St. Joseph.....	1	1	0	0	0	0	0	0	0
St. Louis.....	6	0	0	0	0	0	0	0	0
SOUTH ATLANTIC									
Maryland:									
Baltimore.....	0	1	0	0	0	0	0	0	0
District of Columbia:									
Washington.....	0	0	0	0	1	0	0	0	0
Virginia:									
Roanoke.....	0	0	0	0	0	1	0	0	0
North Carolina:									
Raleigh.....	0	0	0	0	1	1	0	0	0
Wilmington.....	0	0	0	0	1	0	0	0	0
South Carolina:									
Charleston.....	0	0	0	0	15	0	0	0	0
Columbia.....	1	1	0	0	0	0	0	0	0
Georgia:									
Atlanta.....	0	1	0	0	0	1	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis.....	8	7	0	0	0	1	0	0	0
Nashville.....	1	1	0	0	0	0	0	0	0
Alabama:									
Birmingham.....	1	0	0	0	0	0	0	0	0
Mobile.....	0	0	0	0	0	1	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Little Rock.....	0	0	0	0	0	1	0	0	0
Louisiana:									
New Orleans.....	0	0	0	0	6	0	0	0	1
Shreveport.....	0	0	0	0	0	2	0	0	0
Oklahoma:									
Oklahoma City.....	0	1	0	0	0	0	0	0	0
Texas:									
Houston.....	0	1	0	0	0	2	0	0	0
MOUNTAIN									
New Mexico:									
Albuquerque.....	1	0	0	1	0	0	0	0	0
Arizona:									
Phoenix.....	1	0	0	0	0	0	0	0	0
Utah:									
Salt Lake City.....	1	0	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle.....	1	6	0	0	0	0	0	0	0
California:									
Los Angeles.....	0	0	0	0	2	1	0	1	0

¹ Typhus fever: 1 case at Savannah, Ga.

The following table gives the rates per 100,000 population for 98 cities for the 5-week period ended May 17, 1930, compared with those for a like period ended May 18, 1929. The population figures used in computing the rates are approximate estimates, authoritative figures for many of the cities not being available. The 98 cities reporting cases have an estimated aggregate population of more than 32,000,000. The 91 cities reporting deaths have more than 30,500,000 estimated population.

Summary of weekly reports from cities, April 13 to May 17, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929¹

DIPHTHERIA CASE RATES

	Week ended— /									
	Apr. 19, 1930	Apr. 20, 1929	Apr. 26, 1930	Apr. 27, 1929	May 3, 1930	May 4, 1929	May 10, 1930	May 11, 1929	May 17, 1930	May 18, 1929
98 cities.....	88	135	93	136	85	135	79	139	¹ 76	124
New England.....	109	141	78	110	75	81	60	118	97	94
Middle Atlantic.....	87	198	104	194	76	190	89	206	78	159
East North Central.....	96	122	114	143	131	160	104	145	¹ 92	143
West North Central.....	85	112	66	85	66	77	44	104	¹ 74	123
South Atlantic.....	59	66	59	58	46	69	57	64	49	62
East South Central.....	20	7	54	55	0	21	7	27	40	27
West South Central.....	220	99	108	126	101	99	78	88	71	110
Mountain.....	9	70	86	78	43	61	69	52	¹ 0	26
Pacific.....	43	58	57	58	71	72	57	39	60	56

MEASLES CASE RATES

98 cities.....	1,255	896	1,387	838	1,332	928	1,443	804	¹ 1,207	890
New England.....	1,491	498	1,566	561	1,779	496	2,109	480	1,688	431
Middle Atlantic.....	1,156	146	1,256	153	1,353	165	1,365	186	1,410	196
East North Central.....	1,084	2,028	1,009	1,904	1,015	2,322	936	2,194	¹ 880	2,138
West North Central.....	988	2,124	1,324	1,713	983	1,776	1,243	1,549	¹ 659	1,753
South Atlantic.....	996	760	1,194	530	1,086	434	1,187	521	1,123	474
East South Central.....	337	55	459	21	209	130	499	41	405	68
West South Central.....	538	175	635	278	785	343	762	366	798	331
Mountain.....	6,617	209	8,573	366	5,758	444	8,891	296	¹ 4,624	183
Pacific.....	2,100	377	2,412	377	2,069	287	2,324	423	1,949	426

SCARLET FEVER CASE RATES

98 cities.....	305	268	267	295	303	269	264	289	¹ 230	290
New England.....	308	242	319	292	246	278	284	260	230	247
Middle Atlantic.....	276	224	252	240	300	245	281	209	234	220
East North Central.....	395	418	363	451	398	467	321	454	¹ 308	472
West North Central.....	359	216	243	281	376	262	233	277	¹ 252	281
South Atlantic.....	277	90	227	97	269	114	222	243	157	210
East South Central.....	162	144	142	109	148	226	155	130	27	108
West South Central.....	123	225	64	217	123	274	101	309	78	179
Mountain.....	343	70	223	122	352	78	360	52	¹ 171	104
Pacific.....	168	372	205	394	128	345	151	282	149	297

¹ The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1930 and 1929, respectively.

² South Bend, Ind., Sioux City, Iowa, and Denver, Colo., not included.

³ South Bend, Ind., not included.

⁴ Sioux City, Iowa, not included.

Denver, Colo., not included.

Summary of weekly reports from cities, April 13 to May 17, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929—Continued

SMALLPOX CASE RATES

	Week ended—									
	Apr. 19, 1930	Apr. 20, 1929	Apr. 26, 1930	Apr. 27, 1929	May 3, 1930	May 4, 1929	May 10, 1930	May 11, 1929	May 17, 1930	May 18, 1929
98 cities.....	28	9	30	13	28	12	21	11	¹ 22	11
New England.....	2	0	0	0	0	0	2	2	0	0
Middle Atlantic.....	0	0	0	0	1	0	0	0	0	0
East North Central.....	23	11	18	17	21	15	23	17	¹ 15	14
West North Central.....	137	10	142	13	129	13	99	27	¹ 117	15
South Atlantic.....	4	2	0	2	0	0	0	0	4	2
East South Central.....	20	0	47	0	40	21	7	27	81	14
West South Central.....	75	11	41	23	34	42	41	8	22	50
Mountain.....	26	44	94	26	146	122	77	26	¹ 120	148
Pacific.....	83	60	128	80	85	39	97	39	64	14

TYPHOID FEVER CASE RATES

	6	10	6	8	7	8	7	11	¹ 8	9
98 cities.....	7	7	4	4	2	7	0	11	9	0
New England.....	2	8	5	4	3	5	4	3	7	6
Middle Atlantic.....	3	4	6	4	6	3	3	6	¹ 2	3
East North Central.....	8	10	4	12	4	10	8	31	¹ 8	6
West North Central.....	20	24	11	17	5	11	15	15	13	17
South Atlantic.....	7	7	0	21	27	27	20	27	47	0
East South Central.....	7	42	26	34	22	30	4	53	37	65
West South Central.....	17	0	0	0	51	9	17	0	¹ 0	0
Mountain.....	9	10	5	7	7	10	24	7	2	7
Pacific.....	9	10	5	7	7	10	24	7	2	7

INFLUENZA DEATH RATES

	15	15	12	13	9	8	10	10	¹ 8	8
91 cities.....	7	9	11	7	4	2	9	2	0	2
New England.....	15	10	9	12	10	6	10	8	7	7
Middle Atlantic.....	13	14	14	6	7	5	9	7	¹ 4	8
East North Central.....	18	18	9	12	9	18	3	3	3	0
West North Central.....	20	21	11	13	15	11	5	17	18	7
South Atlantic.....	66	15	44	30	22	30	15	37	44	30
East South Central.....	27	51	27	43	23	8	31	27	4	4
West South Central.....	9	9	17	52	0	17	0	26	¹ 0	17
Mountain.....	3	13	0	13	6	16	9	13	15	22
Pacific.....	3	13	0	13	6	16	9	13	15	22

PNEUMONIA DEATH RATES

	153	127	144	117	139	123	137	109	¹ 104	106
91 cities.....	146	114	173	144	151	106	120	90	102	88
New England.....	190	134	168	130	172	136	185	123	130	¹ 14
Middle Atlantic.....	115	119	109	99	108	125	93	101	¹ 68	115
East North Central.....	164	108	80	111	112	126	124	105	106	75
West North Central.....	185	146	192	127	187	109	121	109	156	120
South Atlantic.....	236	157	258	97	140	172	162	149	96	90
East South Central.....	130	78	142	90	119	90	176	94	84	109
West South Central.....	163	122	146	87	60	165	120	87	¹ 51	13
Mountain.....	46	151	61	119	52	72	64	94	58	47
Pacific.....	46	151	61	119	52	72	64	94	58	47

¹ South Bend, Ind., Sioux City, Iowa, and Denver, Colo., not included.

² South Bend, Ind., not included.

³ Sioux City, Iowa, not included.

⁴ Denver, Colo., not included.

⁵ South Bend, Ind., and Denver, Colo., not included.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Week ended May 10, 1930.—The Department of Pensions and National Health reports cases of certain communicable diseases in Canada for the week ended May 10, 1930, as follows:

Province	Cerebro-spinal meningitis	Influenza	Poliomy-elitis	Small-pox	Typhoid fever
Prince Edward Island ¹
Nova Scotia.....	10	.....	.....	.....
New Brunswick.....	1
Quebec.....	14
Ontario.....	3	11	.....	14	9
Manitoba.....	1
Saskatchewan.....	20	.....
Alberta ¹
British Columbia.....	2	.....	2
Total.....	3	21	2	34	27

¹ No case of any disease included in the table was reported during the week.

Quebec Province—Communicable diseases—Week ended May 17, 1930.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended May 17, 1930, as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis.....	4	Measles.....	143
Chicken pox.....	75	Mumps.....	104
Diphtheria.....	45	Scarlet fever.....	106
Erysipelas.....	8	Tuberculosis.....	30
German measles.....	51	Typhoid fever.....	19
Influenza.....	4	Whooping cough.....	47

CHINA

Meningitis.—During the week ended May 3, 1930, five cases of meningitis, with two deaths were reported at Canton, China.

CZECHOSLOVAKIA

Communicable diseases—March, 1930.—During the month of March, 1930, communicable diseases were reported in Czechoslovakia as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax.....	4	—	Paratyphoid fever.....	8	1
Cerebrospinal meningitis.....	20	8	Rabies.....	1	1
Diphtheria.....	1, 883	119	Scarlet fever.....	1, 089	44
Dysentery.....	15	1	Trachoma.....	218	—
Malaria.....	3	—	Typhoid fever.....	524	36
Puerperal fever.....	68	21			

PHILIPPINE ISLANDS

Meningitis.—During the week ended May 24, 1930, four cases of meningitis, with one death, were reported in Manila, P. I.

YUGOSLAVIA

Communicable diseases—April, 1930.—During the month of April, 1930, certain communicable diseases were reported in Yugoslavia as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax.....	33	4	Puerperal sepsis.....	4	1
Cerebrospinal meningitis.....	10	6	Scarlet fever.....	900	151
Diphtheria.....	382	57	Tetanus.....	28	10
Dysentery.....	26	1	Typhoid fever.....	164	23
Erysipelas.....	168	5	Typhus fever.....	22	4
Measles.....	1, 209	62			

CHOLERA, PLAGUE, SMALLPOX, TYPHUS, AND YELLOW FEVER

From medical officers of the Public Health Service, American consuls, International Office of Public Hygiene, Pan American Sanitary Bureau, health section of the League of Nations, and other sources. The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given

CHOLERA

[C indicates cases; D, deaths; P, present]

Place	Nov. 17- Dec. 14, 1929	Dec. 15, 1929- Jan. 11, 1930	Jan. 12- Feb. 8, 1930	Week ended—											
				February, 1930				March, 1930				April, 1930			
				15	22	1	8	15	22	29	5	12	19	26	May, 1930
China:															
Canton.....	2							1							1
Manchuria—Dairen.....	2														
Swatow.....		12,350	6,461	1,577	1,258	1,515	1,564	1,834	2,278	2,687	4,015				
India.....	19,582	6,507	3,606	877	765	900	829	929	1,225	1,526	2,186				
Bassain.....	10,903											3	1	2	
Bombay.....												2	1	1	
Calcutta.....												4			
Madras.....	265	138	202	65	46	53	105	97	83	110	94	137	165	165	
Nagapatam.....	114	90	110	45	27	25	56	73	25	51	71	85	118	118	
Rangoon.....	2														
Tuticorum.....															
India (French). Chandernagor.....															
Karikal.....															
Pondicherry Province.....															

PLAGUE

Place	Nov. 17- Dec. 14, 1929	Dec. 15, 1929- Jan. 11, 1930	Jan. 12- Feb. 8, 1930	Week ended—												
				February, 1930				March, 1930				April, 1930				May, 1930
				15	22	1	8	15	22	29	5	12	19	26	3	
Argentina:																
Andalgala. ¹																
Rosario.....	C		P													
Santa Fe.....	C		6													
Villa Lía.....	D															
Azores: Ponta Delgada.....	D					2										
Belgian Congo: Djugu.....	D	2														
Brazil:																
Rio de Janeiro.....	C		1													
Sao Paulo. ²	D		1													
British East Africa (see also table below):																
Tanganyika.....	C															
Uganda.....	D	281	82				7						11			
Ceylon:	D	282	70										10			
Colombo.....	C	5	2													
D.....	D	4	1													
Plague-infected rats	D	1	1													
Chile: Antofagasta.....	D		1													
Dutch East Indies:																
Batavia and West Java.....	C	340	167													
D.....	D	335	280	31	38	38	46	34	41	23	26					
Plague-infected rats	D	8	3	30	37	37	46	33	42	23	25					
Celebes—Makassar.....	C	1	1	2	2	1			2		1		6	2		
D.....	D		1													
Plague-infected rodents																
East Java and Madura.....	C	1	4													
D.....	D	29	2													
Java and Madura.....	D	29	2													
Surabaya.....	D	537	458	64	69	105	58	59	73	45						
D.....	D	4														
Ecuador (see table below)																

¹ On Mar. 11, 3 deaths from bubonic plague were reported in Andalgala, Catamarca Province, Argentina, since Feb. 5, 1930.

² 21 cases of plague with 8 deaths were reported Jan. 29, 1930, in the State of Sao Paulo, Brazil; 15 of these cases were in the city of Sao Paulo.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE—Continued

[C indicates cases; D, deaths; P, present]

Place	Nov. 17- Dec. 14, 1929	Dec. 15, 1929- Jan. 11, 1930	Jan. 12- Feb. 8, 1930	Week ended—												
				February, 1930				March, 1930				April, 1930				May, 1930
				15	22	1	8	15	22	29	5	12	19	26	3	
Egypt:																
Alexandria.....	6	2	4			1		1		1	1			1	1	3
Assiout.....	3	3	1											1	1	2
Assuan.....	1	2												7	2	9
Behaira.....	1													3		3
Beni Suef.....			2					3	1							
Dakahlieh.....	1	1						3								
Gharbieh.....	3	2	1			2		4		1		2		1	2	1
Girea.....	2	2	1					1								
Port Said.....		1										1				1
Greece (see also table below).												1				
Piræus.....									P	1						
Piræus.....	1	2														
India.....	6,016	4,713	4,414	1,670	1,255	1,324	1,390	1,090	1,187	1,005	903					
Bassein.....	3,457	3,063	3,308	875	913	1,046	1,106	838	911	889	706					
Bombay.....																
Plague-infected rats.....	36	29				1			2		3		4			
Madras Presidency.....	236	336	27	13	13	5	13	21	7	33	25	25	25	35		
Rangoon.....	108	174	13	10	10	52	68	34	32	6	15	3				
Plague-infected rats.....	1	3	3	3	3	1	2		1	2				2		
Indo-China (see also table below):	2	4	1	5	5	1	1			2	1	1	2	1	1	
Pnompenh.....	5		1	7			5	7		2	2	2	1	1	1	
Saigon and Cholon.....	5	1	2	2	2					1						

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE—Continued

[C indicates cases; D, deaths; P, present]

Place	Octo- ber, 1929	No- vem- ber, 1929	De- cem- ber, 1929	Janu- ary, 1930	Feb- ruary, 1930	March, 1930	Place	Octo- ber, 1929	No- vem- ber, 1929	De- cem- ber, 1929	Janu- ary, 1930	Feb- ruary, 1930	March, 1930
British East Africa (see also table above):							Madagascar (see also table above)—Contd.						
Kenya.....	C 140	157	54	34			Moramanga Province.....	C 27	4	12	22	7	5
Uganda.....	C 384	179	216	87			Tamatave Province.....	D 27	3	12	21	4	6
Ecuador: Guayaquil.....	D 351	164	199	75			Tananarive Province.....	D 5		2	3		
Plague-infected rats	C 12	14	17	4	2	2				2	1		
Greece (see also table above).....	D 4	3	6	2	2		Peru.....	C 141	103	97	88	110	
Indo-China (see also table above)	C 5	2	13	4	2	2	Senegal.....	D 132	93	98	83	107	
Madagascar (see also table above)	D 2	1	1				Baol.....	C 45	23	5			18
Ambohitra Province.....	C 203	182	264	10	30	37	Dakar.....	D 13	16	2			8
Antsirabe Province.....	D 193	103	248	238			Louga.....	C 3	17	8			
Itasy Province.....	C 2	42	111	128	49		Thies.....	D 2	5	1		2	
Miarinarivo (Province).....	D 17	3	16	25	22		Tiavaune.....	C 24	1		3		3
	D 10	19	31										2
	D 12	5	3	31	25								11
	D 11	5	3		25								8

1 Incomplete reports.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, death; P, present]

Place	Nov. 17- Dec. 14, 1929	Dec. 15, 1929- Feb. 6, 1930	Week ended—															
			February, 1930					March, 1930					April, 1930				May, 1930	
			15	22	1	8	15	22	29	5	12	19	26	3	10	17		
China:																		
Canton.....	4	5	7	4	1	2	1	1	4				2	1				
Chungking.....	P	P	2	P		P	P	P	P	1			1					
Foochow.....	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P		
Hong Kong.....	62	102	118	18	16	10	12	10	5	11	20	7			1	5		
Manchuria—	D	55	73	109	15	11	10	6	4	5	11	9	3		4	2		
Harbin.....	2	1	3															
Kwangtung—Dairen.....	C		6	4		1	P				P							
Nanking.....		P	P															
Shanghai.....																		
Foreigners only.....																		
Including natives.....	C	5	7	5		2	1	1	1	1	2	1	2	1				
Swatow.....	D	2	6	8	1	3	2	4	3	2	4	3						
Tientsin.....	C	3	3	1	2			3	2	1	2							
Chosen (see table below)	C	4	2	1				2			1							
Columbia:																		
Barranquilla.....	C		1	100	1	1												
Buenaventura.....	D	56	13	1			1	1			1	5	2	1				
Costa Rica:		1																
Port Limon.....																		
San Jose.....	C																	
Curacao (alstrim).....	C																	
Dutch East Indies:																		
Belawan Dell.....	C	1	1				10	3	10	1								
Borneo.....	C																	
Java—	D		1															
Batavia and West Java.....	C	37	17	14	2	3	4	3							1	1		
East Java and Madura.....	D	8	10	7	1	1	2	2	1						1			
Sanggi Islands.....	C	13																
	D	105	17	25	12			5										
		6	3					1										

Place	Octo-ber, 1929	Novem-ber, 1929	Decem-ber, 1929	January, 1930			February, 1930			March, 1930			April, 1930		
				1-10			1-10			1-10			1-10		
				1-10	11-20	21-31	1-10	11-20	21-23	1-10	11-20	21-31	1-10	11-20	21-31
Rumania.....	3	42	1												
Siam.....	1	9	1												
Somaland, British: Boales.....	24	5	35	12											
Straits Settlements.....	9	9	8	2											
Sudan (Anglo-Egyptian).....	54	190	19	1	59	8	5	22	25	2	9	31	3		
Sudan (French) (see table below).	45	34	2		4										
Syria (see table below).															
Tunisia: Tunis.....															
Turkey (see table below).															
Union of South Africa:															
Cape Province.....	47	7													
Natal.....															
Orange Free State.....	P	P	P	P	P	P	P	P							
Transvaal.....	P	P	P	P	P	P	P	P							
Upper Volta.....	P	P	P	P	P	P	P	P							
Zanzibar.....															
On vessel.....															
S. S. Tairua, at Liverpool, from London.....															
S. S. Karagola, at Zanzibar, from India.....		4													
S. S. Karagola, at Lourenco Marques, from India.....															
S. S. Elysia, at Port Sudan, from Bombay.....															
S. S. Naldere, at Port Said.....															
Belgian Congo.....	C	42	74												
Dahomey.....	D	2	4												
Indo-China (see also table above).....	C	19	19												
Ivory Coast.....	C	128	245	142	136	140	184	148	239						
Sudan (French).....	C	P	17		4	225	12	P	201						
Syria: Beirut.....	D	60	25	18	6	48	4	7	10						
Taiwan: Taihoku.....	D	1	6												
	C														

1 During the month of March, 1930, 100 cases of smallpox were reported in Mexico City, Mexico, and surrounding territory.
 2 Newspaper reports of Feb. 4 show an epidemic of smallpox in Tlaxcala, Mexico, and vicinity, giving 600 deaths in preceding 2 weeks.
 3 On Feb. 1, 1930, 317 cases of smallpox with 102 deaths were reported to that date in the Sarangani and Balut Islands.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER—Continued

[C indicates cases; D, deaths; P, present]

Place	October, 1929	November, 1929	December, 1929	January, 1930	February, 1930	March, 1930	Place	October, 1929	November, 1929	December, 1929	January, 1930	February, 1930	March, 1930
Chosen Seuil.....			1	17			Lithuania.....	6	4	5	2	70	62
Czechoslovakia.....		3		10	2	42		1	1	1		5	4
France.....			1				Peru: Arequipa.....	1					
Greece: Athens.....			6	12	6	3	Turkey.....	10	2	4	2	3	1
Latvia.....			2	18			Yugoslavia.....	1		6	26	33	46
										1	3	5	2

YELLOW FEVER

On April 22, 1930, 2 cases of yellow fever were reported at Mage, Brazil, located on the Leopoldina Railway, between Rio de Janeiro and Niteroy; one case of yellow fever was reported in Campos, Brazil, on May 23, 1930; and one case of yellow fever was reported in the Gold Coast during the week ended December 21, 1929.

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The Occurrence of Undulant Fever in Ware County, Ga.
Visible Effect of Castor-Oil Soap on Certain Organisms
Acts Relating to Medical Service in Federal Prisons



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HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. R. C. WILLIAMS, *Chief of Division*

The PUBLIC HEALTH REPORTS are issued weekly by the United States Public Health Service through its Division of Sanitary Reports and Statistics, pursuant to acts of Congress approved February 15, 1893, and August 14, 1912.

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UNDULANT FEVER IN WARE COUNTY, GA.

By GEORGE E. ATWOOD, *Commissioner of Health of Ware County, Ga.*, and H. E. HASSELTINE, *Surgeon, United States Public Health Service*

INTRODUCTION

Ware County, Ga., is situated in the southeastern part of the State, approximately 31° N. latitude and 82.5° W. longitude. It lies in the low, sandy, coastal plain, its southern tip including a part of the Okefenokee swamp.

The population of the county is approximately 33,000, of which about 23,000 are in the city of Waycross, the county seat. The chief industry in the rural portion of the county is turpentine production. In Waycross the shops and operating department of the Atlantic Coast Line are the largest employers of labor. The city is also a trading center for the whole county. The city has a municipal water system of satisfactory quality. The daily milk consumption is approximately 2,500 quarts. Prior to October, 1929, only one milk pasteurization plant was in operation; this plant supplied about 55 per cent of the total milk consumed in the city. About October 15, 1929, the operation of another plant was begun, and since that date about 90 per cent of the milk supply of the city has been pasteurized. In January, 1930, two dairies were producing and selling grade A raw milk under the standard milk ordinance.

OCCURRENCE OF UNDULANT FEVER IN WARE COUNTY

Undulant fever was first recognized in Ware County, Ga., in 1928. During that year 11 cases came to the knowledge of the county board of health, 6 being in the city of Waycross and 5 in a rural community outside the city limits. Investigation in 1928 by one of us (G. E. A.) showed that the 5 cases outside the city of Waycross (3 in one family and 2 in another) had all used milk from a single cow owned by the family, of which 3 members were ill. The cow died shortly afterwards, before any tests had been made to determine whether the animal was suffering from brucelliasis. The patients all gave positive agglutination reactions to *Br. abortus* when tested in the county health laboratory at Waycross. In January, 1930, these five cases

were checked by the junior author. Though the information lacked certain details, due to uncertainty of memory of the individuals, the evidence collected at this time (16 months after date of illness) agreed essentially with that obtained by the senior author at the time of the illness.

Five of the Waycross cases occurring in 1928 had moved to other localities, and so it was impossible for the junior author to check these histories.

The remaining case that occurred in 1928, that of a clerk aged 19, gave a typical clinical history of undulant fever, had a positive agglutination reaction in 1:200 dilution, and gave a history of having consumed raw milk from several herds found to contain cows that reacted positively to the *Br. abortus* agglutination test when tested by the State veterinarian's department. This patient had no contact with livestock nor with meat-handling establishments.

In 1929, 11 cases occurred in Waycross, and 9 of these 11 persons were interviewed by the junior author in January, 1930, and full information was obtained. This was done independently by one of us (H. E. H.), and the data obtained were found to check with those obtained some months before by the other (G. E. A.). The economic condition of the families in which these nine cases occurred is well above the average, none being in the indigent class. All had recovered or were convalescent.

Clinically, the cases showed a marked similarity in that they were all rather acutely ill for a period of two to three months, and the general description of symptoms indicated that the disease was rather severe. One patient spent but four weeks in bed, while one, who suffered bilateral femoral phlebitis, was unable to walk when visited by one of the writers (H. E. H.) 20 weeks after taking to bed. Of the other patients, 3 gave the duration of their illness as 8 weeks and 4 as 11 weeks. Two of the women reported that they had some swelling of the breasts, and one seemed to have narrowly escaped a mammary abscess. Neither was pregnant nor in a state of lactation.

As in most cases of undulant fever, the patients usually could not give an exact date of onset, but all had felt more or less indisposed for a considerable period of time before taking to bed. Table 1 gives the usual epidemiologic statistics of the nine cases.

EPIDEMIOLOGY

Sex.—The distribution between the sexes is practically equal, in contrast to that usually observed in groups containing cases from rural districts in which the incidence is much greater in males than in females.

Age.—The age incidence corresponds with that normally seen in undulant fever, the youngest being 14 and the oldest 56.

Occupation.—The nine patients were distributed among six different occupations, the only vocation given by more than one patient being that of "housewife," which necessarily groups the majority of married women in that occupation. To throw further light upon the environment of the housewife, the occupation of the husband may be noted. Of the four married women in the group, the husbands' occupations were as follows: Merchant, county official, railroad engineer, and train dispatcher. In no case was there an occupation that could be classed as carrying a special hazard with respect to undulant fever. Three of the housewives stated that they occasionally handled meat in the kitchen in the course of the preparation of meals, or in the storing of meat upon receiving it from the market. In all of these families such duties were usually performed by the servants.

Place of residence.—All had lived in Waycross for a period varying from 6 to 25 years. All but one had lived at the present address for one year, although he had lived in Waycross since birth.

TABLE 1.—Epidemiologic data of cases in 1929

Case No.	Sex	Age	Occupation	Approximate date of prodromal symptoms	Date of taking to bed	Duration	Agglutination titer	Remarks
1	M	25	Electrician.....	July 4	July 12	11 weeks...	1:640	Still convalescing.
2	F	42	Housewife.....	July 1	July 30	do.....	1:300	
3	F	56	do.....	do.....	Aug. 5	8 weeks...	1:250	
4	F	38	do.....	Aug. 7	Aug. 21	11 weeks...	1:350	
5	F	20	Stenographer.....	June 1	Sept. 5	20 weeks...	1:640	
6	M	14	High-school student and usher	Aug 25	Sept. 15	8 weeks...	1:160	
7	F	40	Housewife.....	Aug. 30	Oct. 4	4 weeks...	1:640	Absent from work 8 weeks. Absent from work 11 weeks.
8	M	34	Sheet-metal worker...	Oct. 1	Oct. 17	8 weeks...	1:160	
9	M	42	Insurance broker.	Oct. 15	Nov 15	11 weeks...	1:640	

Temporary absences from the city.—Two patients had not been out of Waycross during the 2 months preceding illness; 1 had been absent for 4 weeks before taking to bed, but suffered prodromal symptoms during her entire visit to another city; 2 had been to a near-by beach resort, one having been there for 1 week immediately preceding taking to bed, and the other stated she was feeling ill at the time and thought the change might benefit her; 4 had made short trips, of 1 or 2 days' duration, to Jacksonville, Fla., or other near-by places. No common source of infection was encountered by these cases during any of these temporary absences.

Milk supply.—Table 2 shows the source of milk supply and habits of consumption of dairy products by the patients in the nine cases investigated.

TABLE 2.—Consumption of milk and dairy products by cases in 1929

Case No.	Regular supply	Raw or pasteurized	How used			Extent of use	Ice cream	Butter	Cheese
			Beverage	On cereals or fruits	In coffee				
1	Dairy A.	R	Daily	None	None	At least 1 glass daily	Very little	Creamery	Seldom
2	Dairy B.	R	Occasionally	Daily	Daily	1 quart daily for family of 4	do	do	Very little
3	Dairy A.	R	do	do	do	1 quart daily for family of 3	Very seldom	Dairy	Very frequently
4	do	R	do	Occasionally	do	5 quarts daily for family of 7	Occasionally but does not like it.	Creamery and dairy	Occasionally
5	Dairy C.	P	Daily	Daily	None	1 pint daily, lunch	Very little	Creamery	Very little
6	Dairy A.	R	do	None	do	1 quart daily 2 quarts, family of 4	Occasionally	do	Frequently
7	do	R	do	Daily	do	Nearly 1 quart daily 1 quart for 2 people	Frequently	Dairy	Seldom
8	do	R	do	None	do	1 pint daily, lunch	do	do	Frequently
9	Dairy G.	P	Daily	Daily	Daily	1 quart daily for 3 people	do	Creamery	Frequently
	Dairy A.	R	do	do	do	do	Very little	do	Occasionally

It will be noted that all, except the patient in Case 2, used milk from Dairy A either exclusively or partially. Case 5 used pasteurized milk from Dairy G at home, but used a pint of milk daily for lunch on business days, getting this milk at a drug store which obtained milk from Dairy A. This patient stated that she has always been below normal weight, and in order to gain weight had taken milk daily for lunch and frequently between meals, getting this milk at the drug store conveniently located near her place of work. Case 8 had taken milk daily for lunch at his place of work and stated that the milk bore the cap of Dairy A. At home he took pasteurized milk from Dairy G. Case 9 had used raw milk from Dairy A up to some time in August (exact date unknown) when he changed his regular supply to pasteurized milk from Dairy G. He began to show prodromal symptoms of undulant fever about October 15. Whether he had carried the infection from August to October in latent form can not be definitely determined, though such occurrences have been reported. It should also be stated that this patient frequently visited his parents, who lived outside the city, and took raw milk which came from their own cows. These cows seemed apparently healthy, but had not been tested for *abortus* infection.

Ice cream.—The history of consumption of ice cream by this group is unusual in that most of them used very little ice cream. Case 7 ate it frequently but stated that it was usually made at home and that the mixture was heated before it was frozen. There are two ice-cream manufacturing plants in Waycross, and both pasteurize the milk or cream used in the manufacture of their product. The ice cream of these two plants is used generally throughout the city. It should be stated that both ice-cream plants used milk and cream from herds known to contain cows that gave positive reaction to the *abortus* agglutination test.

Butter.—Five of the nine persons suffering attacks of undulant fever stated that they used creamery butter as their general supply. Two used dairy, or country butter, and two used both kinds. Of course, none was able to state the kind of butter used at meals taken away from home. As nearly all creamery butter is made from pasteurized cream it is not likely that it is a carrier of the infection. It has been shown that the souring of cream makes it impossible to recover *Br. abortus* from the sour product; and as a great portion of country butter is made from sour cream, the danger of its carrying the infection is considerably lessened, if not entirely removed.

Cheese.—Two of the nine individuals were fond of cheese and ate it frequently. The others ate it only occasionally or rarely. The ordinary American cream cheese was the kind used by all. Use of imported cheese was not reported by any of the persons interviewed.

Eggs.—In view of the report of the finding of *Brucella* in fowls and the fact that certain diseases of poultry are passed from generation to generation through the egg, an inquiry was made as to the consumption of eggs, particularly uncooked eggs, by the persons that suffered from undulant fever. One had taken raw eggs in an attempt to bring herself up to normal weight; the others used no raw eggs; 6 preferred their eggs soft cooked, 2 medium, and 1 hard cooked.

Meats.—All ate meats to some extent. Beef was used more than any other kind of meat. Pork was used by all, although two stated that they used no pork in the summer, which was the time when they contracted their infection. In this section it appears to be customary to use little or no pork in the hot months. Mutton was used to a slight extent and poultry quite frequently. None ate raw meat. Six preferred all meat well cooked, one preferred beef rare and other meats well done, and two preferred beefsteaks rare and other meat well done. In view of the evidence that butchers, meat packers, and those engaged in occupations that bring them into contact with slaughtered animals, their carcasses, and by-products are frequently infected, the possibility of contracting the disease by handling meat in the home was not overlooked. As previously noted, three of the women said that they occasionally handled meat in the kitchen while two stated that they did not. Two of those who occasionally handled meat employed cooks who usually looked after the storing and cooking of meats.

In the United States the low incidence of undulant fever in persons following the vocation of cook or house servant would suggest that the spread of the disease through handling meat in the kitchen is a rather remote probability, which thus far has not occurred often enough to make it worthy of serious consideration. The temperature and time required to cook meat are sufficient to kill non-spore-forming organisms that may be present, except perhaps in the very rarest of steaks or roasts.

Water.—The water used by all the cases was the Waycross municipal supply, obtained from artesian wells. This is used by practically the entire population of Waycross. The sanitary quality of the water has been good as far as outbreaks of water-borne disease are concerned. Bacteriologically, it occasionally has shown slight contamination, which the health officials believe is due to pollution arising from the accidental drowning of birds in the open standpipe, situated near the center of the town.

If the water had been the vector of undulant fever infection in Waycross we would expect to find the cases equally distributed between the users of raw and pasteurized milk. At the time when these cases occurred, approximately half the milk supply of the city was raw, the other half pasteurized. What was actually the case was

that 66 per cent of those attacked used raw milk exclusively and the remainder used raw milk to some extent. Not a single case occurred in a person using pasteurized milk exclusively who had used such product a sufficient time to exclude the possibility of latent infection from the previous use of raw milk. It therefore seems logical to exclude the Waycross water supply as a vehicle of infection.

Contact with livestock.—None of the nine individuals whose cases constitute the body of this report had any but very remote and infrequent contact with livestock. Case 6 helped a neighbor catch a goat only a few days before the patient went to bed. He was in the prodromal stage of the illness at the time, and so the chance of infection from the goat may be disregarded. Case 9 visited his parents, who lived outside the city, about twice each month. They had two cows and a few hogs, but the patient states that he had no contact with these animals. The husband of Case 4 had a financial interest in a dairy but did not work therein. The patient stated that she had no contact with any of the animals of the dairy. Except for these instances no contact with livestock during the two or three months preceding these illnesses could be recalled by any of the patients that were questioned.

EPIDEMIOLOGIC NOTES IN INDIVIDUAL CASES

Case 1.—Male, 25, electrician. Lived in Waycross, Ga., all his life and in present home 23 years. Prodromal symptoms July 4. Took to bed July 12. One other person in family. Works wherever his vocation calls him, but is in Waycross most of the time. Used no milk except at home. Water supply, city system. Milk supply, raw milk from Dairy A—drank at least one glass a day; regular family supply one quart daily. Ate very little ice cream, used creamery butter, and seldom ate cheese. Ate no eggs, no raw meat, and prefers all meat well done. No contact with livestock. Blood agglutination positive in 1:640 dilution.

Case 2.—Female, 42. Wife of train dispatcher. Lived at present address six years; three others in family. Took to bed July 30, but had symptoms practically all of July. Absent from city from July 2 to July 28, and sick most of the time she was away. Milk used while absent was probably pasteurized, but this is not certain. Home water supply, city system. Regular milk supply, raw milk from a grocery store. This store obtained raw milk from Dairy B only. Used milk on cereals daily and as beverage occasionally. Ate very little ice cream, creamery butter, very little cheese. Ate no raw eggs, but prefers eggs soft boiled. Ate beef and mutton, but very little pork or sausage. Prefers steaks rare, other meats well cooked. Handled meat in her kitchen. No contact with livestock. Blood agglutination test positive in 1:300 dilution.

Case 3.—Female, 56. Wife of railroad engineer. Lived at present address 25 years. Took to bed August 5, but had suffered vague symptoms for the previous month. Was in Atlanta one week in June and made short trips, of a day or two, to Savannah and Jacksonville. Used milk only on cereals and in coffee on these trips. Used city water. Regular home milk supply, raw milk from Dairy A—1 quart daily for family of three (including servant). Used milk and cream daily on cereals and in coffee and occasionally as beverage. Does not care for ice cream,

although she eats it occasionally. Used butter obtained from a farmer. Ate freely of American cream cheese. Took no raw eggs and prefers eggs medium cooked. Ate very little meat—no raw meat—and prefers all meats well cooked. No contact with livestock. Blood agglutination test positive in 1:250 dilution.

Case 4.—Female, 38. Wife of merchant. Lived at present address 12 years; six others in family, including servant. Took to bed August 21 and had suffered prodromal symptoms for about two weeks prior to that date. During this period spent a week at a beach resort and came home and went to bed. Used no milk except canned milk during this absence. Has city water. Regular home milk supply was raw milk from Dairy A, taking 5 quarts daily for family of seven. She used milk or cream daily in coffee and occasionally on cereals or desserts or as a beverage. Does not like ice cream but eats it occasionally. Butter is partly from a dairy supply and partly creamery butter from stores. Ate cheese occasionally. Ate no raw eggs and prefers eggs soft cooked. Ate all kinds of meats, but took no raw meat; prefers beef rare and other meats well cooked. Occasionally handled meat in the kitchen. Blood agglutination test positive in 1:350 dilution.

Case 5.—Female, 20. Stenographer. Lived at present address 14 years; seven others in family. Took to bed September 5 but had been ailing since about June 1. Spent one week in June at beach resort, but was sick at that time. Usual weight, 100 pounds. Used city water. Regular home milk supply is pasteurized milk from Dairy G. Used this daily at home as beverage and on cereals, etc. In addition to this she took a pint of milk for lunch daily, on business days, at a drug store near her place of work, and occasionally got milk at this drug store between meals in order to gain weight, she having always been below normal weight. Ate very little ice cream, used creamery butter, and ate little cheese. Has taken raw eggs in her endeavor to put on weight; prefers eggs soft cooked. Ate meats, but ate pork in winter only. Ate no raw meat and prefers all meats well cooked. No contact with livestock. Blood agglutination test positive in 1:640 dilution.

Case 6.—Male, 14. High-school student and usher in theater. Lived in Waycross all his life and at present address one year; three others in family. Took to bed September 15, but had suffered prodromal symptoms since about August 25. No absences from city. Used city water. Regular milk supply, Dairy A; used 1 quart daily as beverage, none on cereals or coffee. Ate ice cream occasionally, creamery butter, and is fond of cheese. Ate no raw eggs; prefers eggs soft cooked. Eats only beef during the summer, but takes pork in winter. Ate no raw meat and prefers all meats well cooked. No contact with livestock, except that a few days before he went to bed he helped a neighbor catch a goat. This boy did not care for milk, but on account of his light weight the parents persuaded him to drink a quart of milk daily.

Case 7.—Female, 40. Wife of county official. Lived at present address five years; three others in family, including servant. Took to bed October 4. Prodromal symptoms for over one month previously. Has been absent only for 1-day trips in Jacksonville or Savannah. Took some buttermilk in Jacksonville, but no milk in Savannah. Used city water. Regular home milk supply, raw milk from Dairy A; used it daily as beverage and on cereals and desserts, consuming nearly all of the quart taken daily. Ate ice cream frequently, but usually made it at home, heating the mixture before freezing. Used butter purchased from a woman from the country. Seldom eats cheese. Ate no raw eggs, and prefers eggs medium cooked. Eats the usual kind of meats, but always well cooked; no raw meat eaten. Does not handle meat in the kitchen. No contact with livestock. Blood agglutination test positive in 1:640 dilution and *Br. abortus* isolated from the blood by the State board of health laboratory.

Case 8.—Male, 34. Sheet-metal worker. Lived at present address four years. Took to bed October 17. Prodromal symptoms from about October 1. No absences from city. Used city water. Regular home milk supply, pasteurized milk from Dairy G; used as beverage, on cereals, and in coffee. In addition he got 1 pint of raw milk daily at his place of work and took this with his lunch. This milk was from Dairy A, or at least sold under their cap. Frequently ate ice cream, used creamery butter, ate usual kinds of meat, no raw meat, prefers steaks rare and other meat well done. No contact with livestock. Blood agglutination test positive in 1:225 dilution.

Case 9.—Male, 42. Insurance broker. Lived at present address 20 years; two others in family. Took to bed about November 15. Prodromal symptoms from about October 15. Temporary absences included one trip to Jacksonville and visits to parents, a short distance out of town, about twice a month. On these visits ate dinner at parents' home and may have used milk from their two cows. Used city water at home. Regular home milk supply, raw milk from Dairy A up to some time in August, 1929 (probably about August 25), and since then pasteurized milk from Dairy G; used milk daily as beverage and on cereals. One quart daily taken for family use. Ate very little ice cream, used some creamery and some country butter, and occasionally ate cheese. Ate no raw eggs and prefers eggs well cooked. Ate usual kinds of meat, always well cooked. No raw meat eaten. Contact with livestock very slight, if any. At his father's they had 2 cows and some hogs on the place, but patient did not go near these animals. Blood agglutination titer 1:640 and *Br. abortus* isolated from blood by State health laboratory.

ORGANISMS ISOLATED FROM BLOOD OF PATIENTS

The laboratory of the State board of health was able to grow an organism from the clot of the blood specimen submitted from Cases 7 and 9, which corresponds with the porcine strain of *Br. abortus* (*Br. suis* (Traum) Huddleson, 1929). Both of these cases had practically no contact with livestock and neither handled raw pork. Apparently the explanation lies in the fact that the porcine type of organism has infected the cattle and reached the udder of one or more cows furnishing milk to these persons. Such occurrence would not be surprising in view of the fact that in Ware County most livestock runs at large, there being no fencing of grazing land. Hogs and cattle belonging to different owners may mingle indiscriminately, and under such conditions cross infections may take place.

The finding of the porcine strain of the organism accounts for the rather severe clinical type of the disease, it being quite generally considered that the porcine strain is more pathogenic for man than the bovine strain.

EVIDENCE OF INFECTION IN HERDS SUPPLYING MILK TO WAYCROSS

Late in December, 1928, the application of the *abortus* agglutination test to the dairy herds supplying milk to the city of Waycross was begun by the State veterinarian's department. In a period of 3 months tests were made on 608 cattle in 25 herds and 36 of the cattle reacted positively to the agglutination test. In May, June, and July, 1929,

another test was made, 397 animals being tested, and 21 gave positive reactions. Another test made in December, 1929, included 251 animals, of which 22 gave positive reactions. Dairy A had 1 reactor out of 76 animals in the first test and 2 reactors out of 47 tested on the second test. The dairy was sold before the third test was made, so that the animals would appear under the name of a different owner, if they were still maintained in the vicinity at the time of the third test. Dairy B had no reacting animals on the first test, one reacting on the second test and one on the third test. Dairy C had 6 reacting positively on the first test (23 tested), 7 on the second test (19 tested), and 10 on the third test (13 tested). This herd was by far the worst infected herd in the county. The milk of Dairy C was sold to an ice-cream manufacturing plant which pasteurized its product before freezing.

As the preponderance of evidence obtained by questioning persons who had suffered attacks of undulant fever seemed to point to Dairy A as the disseminator of the infection, and as this dairy never showed more than 2 or 3 reacting animals out of a total number of approximately 75, while Dairy C was extensively infected, inquiry was made to see whether any light could be thrown on this apparent inconsistency. The former manager of Dairy A was questioned (the herd having been sold before this investigation (January, 1930) was made). He stated that Dairy C sold its entire output of milk to one of the ice-cream plants and that this milk was pasteurized before it was made into ice cream. However, when Dairy A was short of milk, he would go to this ice-cream plant and buy sufficient milk to enable him to make delivery to all his customers. This would be raw milk from Dairy C, but would be put into bottles of Dairy A and distributed under the cap of the latter. The manager stated that he usually put this milk into his deliveries to restaurants, drug stores, grocery stores, etc., reserving his own milk for family deliveries.

It was further learned that in the operation of Dairy A it was customary to pour the milk from the receptacle of the milking machine through a strainer into a 10-gallon can. This can of milk would be poured over the cooler, and the milk then went directly to the bottles. As a 10-gallon can would hold the milk of 4 or 5 cows, the milk from 1 infected cow would be mixed with that of 3 or 4 others, and, except for a slight further mixing with milk from the can preceding or following, the infected milk would be diluted only 1 to 5 instead of 1 to 75 as would have been the case had the whole herd's milk been pooled before cooling and bottling was begun. It would also be possible that the milk of more than one infected cow might reach the same can, thereby concentrating the infection, in a comparatively small number of bottles of a day's delivery.

As far as could be learned Case 2 had used no milk from Dairy A though she used milk that came from Dairy B which had shown a reacting animal on the test conducted in May, and another in a later test.

Case 9 is believed to be an example of latent infection, such as those recorded by the Mediterranean Fever Commission, which reported cases that apparently received the infection 1 to 10 months before the disease became apparent. This belief is supported by the fact that this patient used milk of Dairy A up to the approximate time that a relative (Case 4) went to bed with the disease.

DISCUSSION

While the small number of cases investigated precludes any sweeping deductions, there are several facts that deserve comment.

On the whole, it seems highly significant that 9 persons having undulant fever in a city of 23,000, having its milk supply approximately equally divided between raw and pasteurized milk, should all be among users of raw milk—6 having used raw milk exclusively and 3 having used it freely, though not exclusively. It is also rather significant that the raw milk used by 8 of the 9 cases came from a dairy of which the herd is known to have contained reacting animals, and the ninth case used milk from another herd also known to have had reacting animals. Another significant point is that since October 15, 1929, about 90 per cent of the milk of the city has been pasteurized as compared with about 50 per cent before that date, the second pasteurizing plant having been put in operation in October, 1929. Since the latter date no cases have occurred, except Case 9 (reported above), and this patient suffered prodromal symptoms from about October 15.

SUMMARY

1. Nine out of 11 cases of undulant fever occurring in 1929 in Waycross, Ga., were investigated epidemiologically.
2. All of the 9 investigated cases used raw milk, 6 using it exclusively and 3 freely, though not exclusively.
3. Eight of the 9 cases used raw milk from one dairy, 5 using it exclusively.
4. One case used raw milk exclusively from another dairy.
5. Both dairy herds were found to contain cows that reacted positively to the *abortus* agglutination test.
6. The evidence indicates that the cases of undulant fever were due to the porcine strain of *Br. abortus* coming through the milk supply.

Additional note.—On February 4, 1930, the city authorities of Waycross amended the standard milk ordinance so that after March 1, 1930, only Grade A pasteurized milk shall be sold, or offered for sale, for consumption in the city.

Acknowledgments.—It is desired to acknowledge our indebtedness to the State board of health laboratory for information furnished from their records; to the State veterinarian's department for information furnished; to the practicing physicians and hospitals of Waycross for assistance in obtaining data; to the dairy owners, or managers, who furnished valuable assistance; and to the individual patients who cooperated so freely in supplying us the desired information.

THE VISIBLE EFFECT OF CASTOR-OIL SOAP ON CERTAIN ORGANISMS

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The data submitted in this paper demonstrate the visible changes in density of the suspensions of various microorganisms when treated with suitable amounts of castor-oil soap (sodium ricinoleate). So far as we are aware, these changes have not been described heretofore.

Larson and his coworkers (1) (2) (3) (4), in their studies of the effect of surface tension of the menstruum upon bacteria and toxins, have shown that virulent strains of *B. tuberculosis*, *Diplococcus pneumoniae*, and *Streptococcus viridans* can be rendered nonvirulent when suspended in solutions of sodium ricinoleate. Larson is of the belief that the soap, by lowering the surface tension of the menstruum, causes the bacteria to be more readily "wetted," and when the bacteria are introduced into the body their union with the specific antibodies is enhanced. Later it became evident that factors other than the surface tension of the menstrua must be considered, since some soaps which have a marked effect in lowering the surface tension have very little detoxifying action on toxins. Larson did not regard the action of soap as involving a true chemical union, nor did he make note of any physical changes in the bacteria themselves.

Reasoner (5) has suggested that soap lather may be responsible for the rarity of the occurrence of extra genital lesions of syphilis obtained through the barber's manipulation of utensils, since he observed that when a suspension of *Treponema pallidum* was mixed with certain commercial shaving-soap solutions, motility was inhibited at once, and "the organisms became swollen and distorted and reduced in

number." Such a statement seems to imply that many of the organisms were destroyed by the soap solution, although the author does not specifically say so.

Our own observations have shown that the density of suspensions of certain species of bacteria is reduced to zero by appropriate solutions of sodium ricinoleate, while the density of other suspensions is greatly increased. The reaction is apparently an effect not dependent upon the surface tension nor upon the hydrogen ion concentration of the menstruum.

TECHNIQUE FOR TESTING THE CHANGES IN DENSITY OF BACTERIAL SUSPENSIONS

The changes in density of suspensions of various species were tested by arranging a row of 11 agglutination tubes ($\frac{5}{8}$ inch by 3 inches) and placing in them decreasing graded amounts of the soap dissolved in a volume of $\frac{1}{2}$ cubic centimeter of physiological salt solution. The dilutions ranged from 1:50 (2 grams per 100 cubic centimeters salt solution) in the first tube to 1:25,600 in the tenth tube. The last tube contained $\frac{1}{2}$ cubic centimeter of salt solution without any soap and served as a control.

To each tube of the entire series was then added $\frac{1}{2}$ cubic centimeter of a washed suspension of the organisms to be tested (turbidity 500). The final turbidity of the bacterial suspension in each tube was therefore 250, and the series of soap dilutions now ranged from 1:100 to 1:51,200.

We have included in Table 1 only those organisms which gave visible reactions with the various soap dilutions. Readings were made after standing 24 hours at room temperature. A few of the bacterial species would not remain in suspension throughout this period. On shaking, however, they were easily resuspended, and the effect of the soap solution upon the density of the suspension could be easily compared with that in the final tube which contained no soap.

The symbol "4" represents a complete clearing of the suspension, leaving no visible trace of turbidity. In such tubes the suspensions were as clear as distilled water. The symbol "0" represents no change in density as compared with the control tube of each species. The symbol "⊙" represents a change in which the density of the suspension was greater than that of the control tube. The symbols "1," "2," "3," represent decreasing degrees of turbidity less than the control tube or in other words, increasing degrees of clearing less than complete clearing.

TABLE 1.—The effect of graded dilutions of sodium ricinoleate upon suspensions of various bacteria

No.	Bacteria Name	Soap dilutions									
		100	200	400	800	1,600	3,200	6,400	12,800	25,600	No soap
1	<i>Bacterium tularense</i> (<i>Pasteurella tularensis</i>)	4	4	4	4	3	3	3	3	2	0
2	<i>Proteus</i> Xs	3	2	2	0	0	0	0	0	0	0
3	<i>Bacillus typhosus</i> (<i>Eberthella typhi</i>)	3	2	1	0	0	0	0	0	0	0
4	<i>Bacillus paratyphosus</i> A (<i>Salmonella para typhi</i>)	0	0	0	0	0	0	0	0	0	0
5	<i>Bacillus paratyphosus</i> B (<i>Salmonella schottmülleri</i>)	1	0	0	0	0	0	0	0	0	0
6	<i>Bacillus pestis</i> (<i>Pasteurella pestis</i>)	4	4	3	2	1	1	1	1	0	0
7	<i>Bacillus aertrycke</i> (<i>Salmonella aertrycke</i>)	2	2	1	1	1	0	0	0	0	0
8	<i>Bacillus enteritidis</i> (<i>Salmonella enteritidis</i>)	0	0	0	0	0	0	0	0	0	0
9	<i>Bacillus subtilis</i>	1	0	0	0	0	0	0	0	0	0
10	<i>Bacillus prodigiosus</i> (<i>Serratia marcescens</i>)	3	3	2	2	1	1	1	0	0	0
11	<i>Spirillum cholerae asiaticae</i>	4	3	3	3	2	1	1	1	1	0
12	<i>Bacillus alkaligenes</i> (<i>Eberthella alkaligenes</i>)	4	3	3	3	2	1	0	0	0	0
13	<i>Bacillus pyocyaneus</i> (<i>Pseudomonas aeruginosa</i>)	3	3	2	0	0	0	0	0	0	0
14	<i>Bacterium suispestifer</i> (<i>Salmonella suispestifer</i>)	2	1	0	0	0	0	0	0	0	0
15	<i>Bacillus pestis caviae</i>	2	2	1	0	0	0	0	0	0	0
16	<i>Micrococcus intracellularis meningitidis</i> (<i>Neisseria intracellularis</i>)	2	2	2	0	0	0	0	0	0	0
17	<i>Lactobacillus cerei</i>	2	2	1	1	0	0	0	0	0	0
18	<i>Streptococcus thermophilus</i>	2	1	1	0	0	0	0	0	0	0
19	<i>Bacillus butylicus</i>	2	2	2	1	1	1	1	1	1	0
20	<i>Micrococcus roseus</i> (<i>Rhodococcus roseus</i>)	2	2	2	1	1	1	1	1	1	0
21	<i>Bacillus lactis viscosum</i> (<i>Achromobacter viscosum</i>)	2	1	0	0	0	0	0	0	0	0
22	<i>Bacillus simplex</i>	0	0	0	0	0	0	1	2	2	1
23	<i>Acetobacter acetum</i>	0	0	0	0	0	0	2	3	3	1
24	<i>Bacillus gallinarum</i> (<i>Salmonella gallinarum</i>)	2	0	0	0	0	0	0	0	0	0
25	<i>Micrococcus cyaneus</i>	1	0	0	0	0	0	0	0	0	0
26	<i>Torula pink</i>	2	0	0	0	0	0	0	0	0	0
27	<i>Micrococcus rubri casei</i>	2	2	1	1	0	0	0	0	0	0
28	<i>Bacillus niger</i>	0	0	0	0	0	0	1	2	2	0
29	<i>Saccharomyces</i> (species not determined)	1	1	1	1	0	0	0	0	0	0
30	<i>Spirillum rubrum</i>	4	2	1	1	1	1	0	0	0	0
31	<i>Micrococcus flavus</i>	2	1	0	0	0	0	0	0	0	0
32	<i>Endomyces albicans</i>	2	1	0	0	0	0	0	0	0	0
33	<i>Sarcina lutea</i>	2	2	0	0	0	0	0	0	0	0
34	<i>Bacillus columbense</i> (<i>Salmonella columbensis</i>)	2	1	0	0	0	0	0	0	0	0
35	<i>Bacillus albolactis</i>	0	0	0	0	0	0	0	1	1	2
36	<i>Bacillus radicolica</i> (<i>Rhizobium radicolica</i>)	2	2	1	1	0	0	0	0	0	0
37	<i>Bacillus pneumoniae</i> (<i>Klebsiella pneumoniae</i>)	0	0	0	0	0	0	0	0	0	0
38	<i>Bacillus murisepticus</i> (<i>Erysipelothrix murisepticus</i>)	1	1	1	1	1	1	1	1	0	0
39	<i>Staphylococcus citreus</i>	2	2	2	1	1	1	1	1	1	0
40	<i>Chromobacterium violaceum</i>	3	2	2	0	0	0	0	0	0	0
41	<i>Staphylococcus pyogenes</i>	0	0	0	0	0	0	0	0	0	0
42	<i>Bacillus bovisepiticus</i> (<i>Pasteurella bovisepiticus</i>)	4	3	2	0	0	1	2	2	2	1
43	<i>Streptococcus lactis</i>	0	0	0	0	0	0	0	0	0	0
44	<i>Bacillus cereus</i>	3	2	2	1	2	3	3	3	3	0
45	<i>Bacterium pullorum</i> (<i>Salmonella pullorum</i>)	3	2	0	0	0	0	0	0	0	0
46	<i>Diplococcus pneumoniae</i>	2	2	0	0	0	0	0	0	0	0

Symbols.

4=complete clearing, no visible opacity.

0=no change, turbidity=250, same as control tube.

⊙=density greater than 250.

DISCUSSION OF TABLE 1

In the case of *Bacterium tularense* there is noted a complete clearing of the bacterial suspension with a soap dilution of 1:800 or lower. This reaction of the soap with *B. tularense* is immediately visible. With no other bacterial species did the density of the suspension disappear so promptly, nor did complete clearing take place in as high dilutions of the soap. So far as our tests have been carried out (83 species tested) the reaction with *B. tularense* is unique, and we believe it can be employed as an additional criterion of identity for this organism. A total of 9 strains of *B. tularense* obtained from

various sections of the United States, 1 strain from Japan, and 2 from Russia have been tested. The same specific response was obtained with each. It should be stated that old stock suspensions of *B. tularensis* to which formalin had been added as a preservative did not give as complete clearing as did fresh suspensions.

Several other bacterial species are seen to be completely cleared in low dilutions. *B. pestis*, for example, left no trace of turbidity in soap dilutions of 1:100 and 1:200. Likewise, *B. alkaligenes*, *Spirillum cholerae*, and *Spirillum rubrum* were completely cleared in dilutions of 1:100. However, these organisms were not completely cleared immediately, nor were they cleared after 24 hours in as high dilutions of the soap as was the case with *B. tularensis*.

Whenever there was a complete disappearance of visible turbidity, a marked increase in viscosity of the solutions resembling pure glycerin in consistency was always apparent.

It was a surprise also to find that the sodium ricinoleate had the effect of increasing rather than decreasing the turbidity of some bacterial suspensions. The dilution of soap at which this increased turbidity occurred was not the same for all species of bacteria showing it, but varied widely. Indeed in some cases the turbidity of the same species was reduced at one concentration of soap, remained unaffected at another, and was increased at still another. For example *Bacillus columbense* (No. 34) was partially cleared in a soap dilution of 1:100 and showed an increased density in dilutions of 1:800, 1:1,600, and 1:3,200. The density of *Bacillus niger* (No. 28), on the other hand, increased in soap dilutions of 1:100, 1:200, and 1:400, but remained unchanged in dilutions of 1:800, 1:1,600, and 1:3,200, and was perceptibly clearer than the control tube in dilutions of 1:6,400 to 1:51,200, inclusive. All those organisms which gave unusual density effects were retested several times, using both washed and unwashed suspensions. The results showed only slight variations.

Suspensions of *Diplococcus pneumoniae* were only slightly cleared by the soap. These tests were repeated with the same result, since Kozlowski (6) reports that sodium ricinoleate may be used instead of bile for dissolving pneumococci.

MICROSCOPIC OBSERVATIONS

If we now observe under the microscope the effect of sodium ricinoleate, in appropriate concentration, upon a suspension of *B. tularensis*, we find that the bacterial bodies appear to become only slightly swollen and the outlines of the cell wall less distinct. At the same time one notes a tendency to clump in small masses, the margins of which also gradually become hazy and indefinite. Under

dark field illumination one notices that the individual organisms first begin to lose their refractility as a whole, but have remaining a few refractile granules within shadowlike bodies. Finally, all trace of the bacterial cell disappears.

An actual rupture of the cell membrane, however, has never been observed with any of the bacteria.

However, in the case of a protozoa, such as *Paramecium caudata*, an organism which can be more readily observed, a marked swelling of the cell takes place in the presence of the soap. The protoplasm becomes granular, and the cell membrane can be seen to rupture, extruding the granular contents.

Again, when mammalian erythrocytes (sheep) are treated with sodium ricinoleate, one notices that these cells also exhibit first a considerable swelling and then gradually fade from view without any visible rupture or bursting of the cell as seen in the case of *Paramecium caudata*.

Saponin, which is also a good surface tension depressant, has not the slightest effect upon *B. tularensis* or any other bacterial species that we have tested; yet it dissolves red cells in higher dilutions than does sodium ricinoleate.

Table 2 gives a comparison of the effect of sodium ricinoleate and saponin upon three organisms from widely different sources and upon the red cells of the sheep. It can be seen that the visible effect of these two substances upon actively motile *Paramecia* was practically identical. Also, their effect upon live guinea pig spermatozoa was the same so far as could be ascertained.

TABLE 2.—Comparison of the effect of sodium ricinoleate with that of saponin on *B. tularensis*, *Paramecium caudata*, guinea pig spermatozoa and red cells of sheep.

	Suspension of virulent <i>B. tularensis</i>	Actively motile <i>Paramecium caudata</i>	Actively motile guinea pig spermatozoa	Red cells of sheep
Sodium ricinoleate.	Complete clearing of a suspension of 250 turbidity in dilutions of 1:800. Suspensions rendered noninfectious to guinea pigs in soap dilutions of 1:12,800 after 1 hour's standing.	Motionless in 9 minutes in soap dilutions of 1:51,200. Cells swollen and many ruptured.	Motionless immediately in dilutions of 1:51,200. No dissolution of the sperms even in 1 per cent solutions.	Complete hemolysis in dilution of 1:3,200 and lower after 1 hour and in 1:6,400 after 24 hours.
Saponin.....	Turbidity of suspensions not affected. Infectiousness for guinea pigs unaffected by 1 per cent saponin after 1 hour's standing.	Motionless in 8 minutes in saponin dilutions of 1:51,200. Cells swollen and many ruptured.	Motionless immediately in dilutions of 1:51,200. No dissolution of the sperms even in 1 per cent solutions.	Complete hemolysis in dilution of 1:12,800 after 1 hour and in 1:25,600 after 24 hours.

On the other hand, sodium ricinoleate immediately cleared suspensions of *B. tularensis* and rendered the organisms noninfectious (as demonstrated by inoculation of guinea pigs), while saponin had no apparent effect whatever either upon the density of the suspension or upon the infectivity of the organisms. It is also seen that sheep cells were hemolyzed in high dilutions of saponin, but were not hemolyzed in corresponding dilutions of sodium ricinoleate.

While the soap in strong concentration (0.5 to 1 per cent) was bactericidal to all strains in a suspension of salt solution that were tested, nevertheless some species, such as *Spirillum cholerae*, *Acetobacter acetum* and *proteus* X₁₀, grew well in plain broth containing 1 per cent of the soap. In the case of *Spirillum cholerae* this was hardly to be expected, since 1 per cent soap completely cleared and killed a salt solution suspension (250 turbidity) within 24 hours. These observations are being pursued further.

In addition, the 37 bacterial species which are listed below were treated with graded dilutions of sodium ricinoleate in a manner similar to that in which those recorded in Table 1 were treated. In no case was either a decrease or an increase in turbidity noted.

1. *Micrococcus melitensis* (*Brucella melitensis*).
2. *Bacillus abortus* (*Brucella abortus*).
3. *Bacillus leprae* (*Mycobacterium leprae*).
4. *Bacillus tuberculosis* (*bovis*) (*Mycobacterium tuberculosis* (*bovis*)).
5. *Bacillus tuberculosis* (*hominis*) (*Mycobacterium tuberculosis* (*hominis*)).
6. *Staphylococcus aureus*.
7. *Bacillus anthracis*.
8. *Bacillus coli* (*Escherichia coli*).
9. *Monilia psilosis*.
10. *Bacillus diphtheriae* (*Corynebacterium diphtheriae*).
11. *Bacillus dysenteriae* (*Eberthella dysenteriae*).
12. *Micrococcus tetragenus* (*Gaffkya tetragena*).
13. *Bacillus lacti acidii*.
14. *Bacillus aerogenes*.
15. *Streptococcus viridans*.
16. *Streptococcus hemolyticus*.
17. *Saccharomyces cerevisiae*.
18. *Bacillus botulinus* (*Clostridium botulinus*).
19. *Bacillus histolyticus* (*Clostridium histolyticum*).
20. *Bacillus tetani* (*Clostridium tetani*).
21. *Bacillus welchi* (*Clostridium welchi*).
22. *Bacillus oedematis maligni* (*Clostridium oedematis maligni*).
23. *Bacillus propionice*.
24. *Bacillus vulgatus*.
25. *Bacillus fusiformis*.
26. *Micrococcus catarrhalis* (*Neisseria catarrhalis*).
27. *Bacillus bronchisepticus* (*Alkaligenes bronchisepticus*).
28. *Bacillus fecalis alkaligenes* (*Alkaligenes fecalis*).
29. *Bacillus biazoteus* (*Cellulomonas biazotea*).

30. *Bacterium lactis aerogenes* (*Aerobacter aerogenes*).
31. *Bacillus cuniculicida* (*Pasteurella cuniculicida*).
32. *Bacillus rubricus* (*Serratia rubrica*).
33. *Cryptococcus metaniger*.
34. *Bacillus mycoides roscus* (*Serratia rosca*).
35. *Torrula red*.
36. *Bacillus megatherium*.
37. *Bacillus mycoides*.

The failure of the soap to affect the turbidity of the above bacterial suspensions does not mean, of course, that the bacteria themselves were in no way affected, but simply that there was no visible change as noted with other species. On the other hand, the complete clearing of a suspension does not mean that the organisms are killed. For example, suspensions of *Spirillum cholerae* are completely cleared by 1 per cent solution of soap, and yet the organism will grow luxuriantly in broth media containing 1 per cent soap. At the present time we are unable to account for these physical or chemical changes responsible for the increased densities of the suspensions of organisms as shown in Table 1. It was noted, however, that when slide preparations were made of those suspensions showing an increased density, it was found that the bacteria stained a deeper hue with aniline dyes than did the organisms from the same suspensions not treated with soap.

SUMMARY

1. Sodium ricinoleate, in appropriate amounts, completely clears the bacterial suspensions of certain species in physiological salt solution, rendering such suspensions water clear.
2. The density of suspensions of certain other bacterial species is increased by appropriate concentrations of sodium ricinoleate.
3. The density of still other bacterial suspensions is increased at one concentration and decreased at another concentration. The explanation of such changes is not yet apparent.
4. Certain bacterial species will grow in plain broth containing 1 per cent sodium ricinoleate.

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MEDICAL SERVICE IN FEDERAL PRISONS

By W. L. TREADWAY, *Assistant Surgeon General, Narcotics Division, United States Public Health Service*

An act of the Seventy-first Congress, second session, approved by the President on May 13, 1930, authorizes that medical relief under the Department of Justice in Federal penal and correctional institutions shall be supervised and furnished by personnel of the Public Health Service.

With the cooperation and support of the two governmental departments concerned, proposed legislation to accomplish this object was introduced in the House of Representatives by Congressman George S. Graham, of Pennsylvania, on January 28, 1930, as H. R. 9235. A report on this bill from the Committee on the Judiciary of the Senate, submitted by Senator Frederick Steiwer, of Oregon, serves to illustrate the attitude of the legislative branch of the Government concerning this proposed activity. The report of the Committee on the Judiciary is quoted as follows:

The Committee on the Judiciary, to which was referred the bill (H. R. 9235) to authorize the Public Health Service to provide medical service in the Federal prisons, have given full consideration to the same, and now report favorably thereon with the recommendation that the bill pass without amendment.

Medical service is of outstanding importance in the treatment of prisoners in our Federal penal institutions. To eliminate contagious diseases, to properly diagnose physical ailments, to accurately classify men with reference to their mental capacities, is of cardinal importance in the treatment of the individual prisoner; but it is of greatest importance in the protection of our communities. It has been difficult in the past to secure the services of a sufficient number of highly trained physicians, surgeons, and mental experts to fill the posts in our prisons.

There is now within the Federal Government an existing personnel of highly trained medical experts. The United States Public Health Service has acquired an enviable reputation for achievement in its field. It would seem to be a wise scheme to have the Government utilize the services of the United States Public Health Service in its penal institutions. This should result in more expert service and offer a continuation and unification of policies among our institutions which could not perhaps be otherwise obtained.

The committee respectfully urges the support of this bill as an important step to be taken in the reorganization of the Federal prison system.

The Secretary of the Treasury and the Attorney General have both been recorded as favorable to this bill and have expressed the opinion that it offers an opportunity for increased and useful cooperation between Government departments.

Another act of the Seventy-first Congress, second session, approved by the President on May 13, 1930, authorizes the establishment of a hospital for the care and treatment of all persons charged with or convicted of offenses against the United States, who are in actual custody, and during their detention or confinement are or shall become insane, afflicted with an incurable or chronic degenerative disease, or

so defective mentally or physically as to require special medical care and treatment not available in existing Federal institutions. A report on this bill from the Committee on the Judiciary of the Senate, submitted by Senator Hubert D. Stephens, of Mississippi, is quoted below:

The Committee on the Judiciary, to which was referred the bill (H. R. 7410) to establish a hospital for defective delinquents, has given full consideration to the same and now reports favorably thereon with the recommendation that the bill pass without amendment.

This bill, which is one of the series designed to enable the Department of Justice to cope with the present unsatisfactory condition in our prisons, presents an important opportunity for further relief from overcrowding in our Federal penal institutions.

As at present constituted, the Federal penal system makes no special provision for the cases of convicts who are insane, tubercular, or chronically sick. Two hundred and four Federal insane convicts are now crowded into unsuitable and insufficient quarters at St. Elizabeths Hospital in Washington, D. C. The superintendent of that institution is recorded as strongly in favor of this legislation. Tubercular prisoners must, under the present arrangements, be cared for in tents or in portions of buildings located within the prison reservations. The chronically sick among the inmate population, who present but slight necessity for that close restraint typical of a prison, must now be placed in prison cells or in prison environment.

The bill as here proposed would authorize the establishment of a general hospital for the care, custody, and treatment of this difficult and pitiable class of prisoners. The common dictates of humanity would seem to demand something better for them than is possible under existing facilities. Their segregation would form an important element in the program of penal treatment as planned by the group of bills herewith recorded by the committee.

The bill provides for the manner of commitment and discharge, has been carefully studied by the committee and meets its entire approval. There follows a statement from the Department of Justice explaining the aims and purposes of the bill:

BILL TO ESTABLISH A HOSPITAL FOR DEFECTIVE DELINQUENTS

A special hospital is needed for the care and treatment of the relatively large percentage of the prison population which is defective mentally or physically. It is well recognized that very often the cause of crime is some mental or physical handicap which must be removed if the man or woman who gets into prison is to be improved by confinement. It is generally assumed that about 6 per cent of the whole population is so defective mentally that they ought to be segregated. To house and care for even this percentage of the prison population would require an institution built to accommodate about 600 patients. In addition to the mental defectives, a large number of the inmates of correctional institutions are afflicted with diseases which demand special treatment. These include tuberculosis cases, advanced venereal cases, senility, and other types of chronic, degenerative, or incurable diseases.

Those mental cases which are so apparent they can be recognized by the regular prison officials are now sent to St. Elizabeths Hospital in Washington. Less apparent cases of mental instability and those who are suffering from disease are retained at the prison and treated in the prison hospital.

The Government hospital for the insane, in the District of Columbia, is badly overcrowded. The criminally insane ward is particularly congested and can not house any more insane convicts. Moreover, the cost of transporting insane convicts from all over the country is high. It is for these reasons that a medical center for prison cases should be established somewhere in the central part of the United States.

The bill as drafted is substantially the same as the ones authorizing two new correctional institutions. It has, however, one section which provides a board of

examiners to pass on all cases to be sent to the hospital for defective delinquents. The reason for this provision was the feeling that no person, even though he is in prison, ought to be stigmatized as insane except by formal proceedings of a qualified board. Moreover, it was felt some such board was desirable to make certain that only cases really demanding special treatment would be transferred to the hospital for defective delinquents.

The bill also has a section which makes it the duty of the prison officials to see that no person who is suffering from a mental disease is turned loose upon the public without first trying to get the particular State concerned to take him in charge. At present, if the officials believe a convict whose sentence has expired is still insane, they continue to hold him unless his release is sought by one of his friends through legal process. In such cases they have no alternative but to release him, as their jurisdiction ended with the expiration of the sentence. The proposed provision would authorize a definite procedure for handling such cases.

As a matter of convenience to those who may be interested in them, the two acts discussed above are presented in full herewith:

[PUBLIC—No. 203—71ST CONGRESS]

[H. R. 9235]

An Act To authorize the Public Health Service to provide medical service in the Federal prisons

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That, hereafter, authorized medical relief under the Department of Justice in Federal penal and correctional institutions shall be supervised and furnished by personnel of the Public Health Service, and upon request of the Attorney General, the Secretary of the Treasury shall detail regular and reserve commissioned officers of the Public Health Service, pharmacists, acting assistant surgeons, and other employees of the Public Health Service to the Department of Justice for the purpose of supervising and furnishing medical, psychiatric, and other technical and scientific services to the Federal penal and correctional institutions.

SEC 2. The compensation, allowances, and expenses of the personnel so detailed may be paid from applicable appropriations of the Public Health Service in accordance with the law and regulations governing the personnel of the Public Health Service, such appropriations to be reimbursed from applicable appropriations of the Department of Justice; or the Attorney General is hereby authorized to make allotments of funds and transfer of credit to the Public Health Service in such amounts as are available and necessary, which funds shall be available for payment of compensation, allowances, and expenses of personnel so detailed, in accordance with the law and regulations governing the personnel of the Public Health Service.

Approved, May 13, 1930.

[PUBLIC—No. 201—71ST CONGRESS]

[H. R. 7410]

An Act To establish a hospital for defective delinquents

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Attorney General is authorized and directed to select a site, either in connection with

some existing institution or elsewhere, for a hospital for the care and treatment of all persons charged with or convicted of offenses against the United States, and who are in the actual custody of its officers or agents, and who at the time of their conviction or during the time of their detention and/or confinement are or shall become insane, afflicted with an incurable or chronic degenerative disease, or so defective mentally or physically as to require special medical care and treatment not available in an existing Federal institution.

SEC. 2. Upon the selection of an appropriate site the Attorney General shall submit to Congress an estimate of the cost of purchasing the same and of remodeling, constructing, and equipping the necessary buildings thereon. The Attorney General, at the same time and annually thereafter, shall submit estimates covering the expense of maintaining and operating such institution, including salaries of all necessary officers and employees.

SEC. 3. That the Secretary of the Treasury is hereby authorized, upon request of the Attorney General, to cause plans, specifications, and estimates for the remodeling and constructing of the necessary buildings to be prepared in the Office of the Supervising Architect of the Department of the Treasury, and the work of remodeling and constructing the said buildings to be supervised by the field force of said office: *Provided*, That if, in his discretion, it would be impracticable to cause such plans, specifications, and estimates to be prepared in the Office of the Supervising Architect of the Department of the Treasury, and such work to be supervised by the field force of said office, the Secretary of the Treasury may contract for all or any portion of such work to be performed by such suitable person or firm as he may select: *Provided further*, That the proper appropriation for the support and maintenance of the Office of the Supervising Architect be reimbursed for the cost of such work and supervision.

SEC. 4. That the control and management of the institution to be established hereunder shall be vested in the Attorney General, who shall have power to promulgate rules for the government thereof, and to appoint, subject to the civil service laws and regulations of the United States, all necessary officers and employees. In connection with such maintenance and operation the Attorney General is authorized to establish and conduct industries, farms, and other activities; to classify the inmates; and to provide for their proper treatment, care, rehabilitation, and reformation.

SEC. 5. That the inmates of said institution shall be employed in such manner and under such condition as the Attorney General may direct. The Attorney General may, in his discretion, establish industries, plants, factories, or shops for the manufacture of articles, commodities, and supplies for the United States Government; require any department or establishment of the United States to purchase at current market prices, as determined by the Attorney General or his authorized representatives, such articles, commodities, or supplies as meet their specifications. There may be established a working-capital fund for said industries out of any funds appropriated for said institution; and said working-capital fund shall be available for the purchase, repair, or replacement of machinery, or equipment, for the purchase of raw materials and supplies, for personal services of

civilian employees, and for the payment to the inmates or their dependents of such pecuniary earnings as the Attorney General shall deem proper.

SEC. 6. There is hereby authorized to be created a board of examiners for each Federal penal and correctional institution where persons convicted of offenses against the United States are incarcerated, to consist of (1) a medical officer appointed by the warden or superintendent of the institution; (2) a medical officer to be appointed by the Attorney General; and (3) a competent expert in mental diseases to be nominated by the Surgeon General of the United States Public Health Service. The said board shall examine any inmate of the institution alleged to be insane or of unsound mind or otherwise defective and report their findings and the facts on which they are based to the Attorney General. The Attorney General, upon receiving such report, may direct the warden or superintendent or other official having custody of the prisoner to cause such prisoner to be removed to the United States hospital for defective delinquents or to any other such institution as is now authorized by law to receive insane persons charged with or convicted of offenses against the United States, there to be kept until, in the judgment of the superintendent of said hospital, the prisoner shall be restored to sanity or health or until the maximum sentence, without deduction for good time or commutation of sentence, shall have been served.

SEC. 7. Any inmate of said United States hospital for defective delinquents whose sanity or health is restored prior to the expiration of his sentence, may be retransferred to any penal or correctional institution designated by the Attorney General, there to remain pursuant to the original sentence computing the time of his detention or confinement in said hospital as part of the term of his imprisonment.

SEC. 8. It shall be the duty of the superintendent of said hospital to notify the proper authorities of the State, District, or Territory where any insane convict shall have his legal residence, or, if this can not be ascertained, the proper authorities of the State, District, or Territory from which he was committed, of the date of the expiration of the sentence of any convict who, in the judgment of the superintendent of said hospital, is still insane or a menace to the public. The superintendent of said hospital shall cause to be delivered into the custody of the proper authorities of the State, District, or Territory the body of said insane convict.

SEC. 9. All transfers from penal and correctional institutions to or from the hospital for defective delinquents shall be made in such manner as the Attorney General may direct, and the expense thereof shall be paid from such appropriation as may be authorized.

SEC. 10. The expenses incurred in the necessary travel in the selection of a site, in making of surveys, the making of preliminary sketches, and the securing of options shall be payable out of appropriation "Support of prisoners" for the fiscal year in which such expense is incurred, not exceeding, however, the sum of \$20,000.

SEC. 11. There are hereby authorized to be appropriated such funds as are necessary to carry out the purpose of this Act.

Approved, May 13, 1930.

A review of the public documents respecting these two acts again calls attention to the fact that important medical problems arise in

connection with the care of Federal prisoners. These may be considered under the headings of routine requirements and of research activities. The routine requirements involve the psychiatric examination and classification of all inmates and physical examinations that will permit of prompt recognition and correction of physical defects and diseases among prisoners.

The psychiatric examination and classification of prisoners is of very great value to those concerned with the application of disciplinary measures, with the treatment of prisoners generally, with the transfer of mentally disordered persons to institutions most suited to give specialized care, and with the subject of parole and discharge of inmates. A more intimate knowledge of the mental characteristics of prisoners will contribute to a better understanding of features involved in correctional systems generally, to the necessity for specialized methods in court procedure, and to the evolution of institutional facilities to meet the requirements applicable to individual cases.

It is obvious that inmates of prisons are subject to the same intercurrent physical and mental defects as are seen among those comprising the general population. A properly organized prison medical service, therefore, must be both general and special in character to meet these needs.

A well-organized medical service in a modern prison can contribute to the welfare of inmates and employees in ways other than those mentioned, such as the following: By rendering advice and counsel respecting sanitation and personal hygiene; by helping to organize and guide recreational, educational, occupational, and vocational activities with a view to promoting the health of both inmates and employees; and, by giving assistance and advice for maintaining a wholesome and well-balanced dietary, the neglect of which is a great source of discord and complaints in all prisons.

It is manifest that the chief medical officer of a large modern prison has an important and specialized duty to perform, and one requiring special training, administrative ability, tact, and judgment. As a rule, the recruiting of medical personnel and the organization of a reliable and competent group to perform the duties incident to the medical service of a large prison are most unsatisfactory unless there is some adequate reward for service. Satisfactory working conditions, reasonable salary and tenure of office, opportunities for advancement, and retirement for disability or old age are important considerations. Above all else, however, and that which makes the greatest appeal, is the satisfaction which comes to medical men and women who are given opportunity to contribute something to the sum of knowledge in respect of a particular and specialized field. Any medical service in any prison which does not assume the flavor of study and investigation is doomed to be perfunctory in character.

It is not assumed that Federal prisoners should be used as experimental animals for the furtherance of medical knowledge. However, a large prison may be regarded as analogous to a laboratory, subject to control, where observations and scientific studies should be made possible. The following are some of the problems of human ills that might be profitably observed and studied under this controlled environment: Cardiorenal diseases; the treatment of syphilis; dental caries and pyorrhea—in fact, the whole array of focal infection; statistical studies of the physical status of prisoners, with special reference to the glands of internal secretion; studies of the social factors instrumental in unsocial reactions; the mental characteristics of individual prisoners; the motivation behind special types of crimes, or habits, such as drug addiction; physiological and chemical studies of the normal in contrast with the abnormal; standardization and the uniform collection of statistics of prisoners with special reference to their physical and mental status; and other contributions on the routine handling of specific illnesses and defects.

It is obvious that the Public Health Service is interested in the investigative and the administrative possibilities which the two laws provide. Apparently no new precedent has been established by charging the Public Health Service with this new responsibility; for it is merely another step in attempting to coordinate and promote uniformity in the medical work of the Federal Government.

COURT DECISION RELATING TO PUBLIC HEALTH

Nuisance caused by sewage and waste disposal enjoined.—(Michigan Supreme Court; *Gundy et ux. v. Village of Merrill et al.*, 230 N. W. 163; decided Apr. 7, 1930.) In a suit against a village and a creamery company for an injunction and damages the plaintiffs claimed that one of the outlets of the village sewer ran into a closed, tiled drain, that this in turn emptied into an open drain or ditch which crossed plaintiffs' farm, that foul matter coming from the sewer stagnated in front of plaintiffs' home, that the creamery company deposited waste in the tiled drain with like effect, and that the odors, etc., arising from the open drain or ditch were so offensive that it was impossible for them to live in their home without enduring an almost intolerable nuisance. The creamery company maintained that it no longer deposited offensive substances in the drain. The lower court found in plaintiffs' favor. No damages were awarded, but the nuisance was ordered abated by a certain date, after which date the depositing of offensive substances in the ditch was enjoined. The defendants appealed.

The supreme court held that the village had no right to deposit sewage in an open drain in any manner that would cause a nuisance and that there could be no prescriptive right to maintain a public nuisance. The court said that the measures necessary to abate the nuisance were for the determination of the village's administrative officers. It then extended the time allowed for the abatement of the nuisance and provided that after such time the defendants should be enjoined from depositing sewage and waste in the drain so as to cause offensive odors, smells, or vapors in front of plaintiffs' home.

DEATHS DURING WEEK ENDED MAY 31, 1930

Summary of information received by telegraph from industrial insurance companies for the week ended May 31, 1930, and corresponding week of 1929. (From the Weekly Health Index, June 4, 1930, issued by the Bureau of the Census, Department of Commerce)

	Week ended May 31, 1930	Corresponding week, 1929
Policies in force.....	75, 782, 122	74, 266, 514
Number of death claims.....	11, 132	11, 437
Death claims per 1,000 policies in force, annual rate.....	7. 7	8. 0

Deaths from all causes in certain large cities of the United States during the week ended May 31, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index, June 4, 1930, issued by the Bureau of the Census, Department of Commerce)

City	Week ended May 31, 1930		Annual death rate per 1,000 corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended May 31, 1930 ¹
	Total deaths	Death rate ¹		Week ended May 31, 1930	Corresponding week, 1929	
Total (65 cities).....	6, 604	11. 6	12. 8	605	698	50
Akron.....	28			3	3	27
Albany.....	20	8. 7	16. 0	0	3	0
Atlanta.....	80	16. 4	15. 9	6	6	63
White.....	48			4	3	127
Colored.....	32	(²)	(²)	2	3	32
Baltimore.....	196	12. 3	14. 1	20	33	68
White.....	147			13	24	56
Colored.....	49	(²)	(²)	7	9	113
Birmingham.....	62	14. 5	13. 4	8	4	28
White.....	21			2	1	31
Colored.....	41	(²)	(²)	1	3	24
Boston.....	201	13. 1	15. 5	20	22	56
Bridgeport.....	28			1	3	17
Buffalo.....	127	11. 9	13. 4	13	9	58
Cambridge.....	15	6. 2	12. 0	2	2	37
Camden.....	25	9. 6	9. 6	1	2	18
Canton.....	12	5. 4	9. 8	2	3	50
Chicago.....	604	10. 0	13. 3	51	77	45
Cincinnati.....	86			8	8	47
Cleveland.....	183	9. 4	10. 4	17	14	51
Columbus.....	83	14. 5	14. 0	8	4	78
Dallas.....	58	13. 9	8. 9	10	0	
White.....	43			6	6	
Colored.....	15	(²)	(²)	4	0	
Dayton.....	30	8. 5	11. 9	3	2	44
Denver.....	78	13. 8	12. 2	7	7	73
Des Moines.....	31	10. 6	10. 3	1	0	17

Footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended May 31, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929—Continued.

City	Week ended May 31, 1930		Annual death rate per 1,000 corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended May 31, 1930 ¹
	Total deaths	Death rate ¹		Week ended May 31, 1930	Corresponding week, 1929	
Detroit.....	248	9.4	12.7	22	45	34
Duluth.....	25	11.2	13.8	6	2	161
El Paso.....	41	18.1	20.4	10	7	—
Erie.....	21	—	—	3	2	64
Fall River ⁴	27	10.5	8.5	3	2	69
Flint.....	19	6.7	12.6	4	7	47
Fort Worth.....	39	11.9	11.0	4	1	—
White.....	27	—	—	2	1	—
Colored.....	12	(⁵)	(⁵)	2	0	—
Grand Rapids.....	30	9.5	13.0	3	3	46
Houston.....	76	—	—	11	4	—
White.....	51	—	—	7	3	—
Colored.....	25	(⁵)	(⁵)	4	1	—
Indianapolis.....	74	10.1	15.8	4	9	30
White.....	55	—	—	3	7	26
Colored.....	19	(⁵)	(⁵)	1	2	54
Jersey City.....	56	9.0	13.8	7	7	61
Kansas City, Kans.....	15	6.6	15.0	1	4	24
White.....	14	—	—	1	3	27
Colored.....	1	(⁵)	(⁵)	0	1	0
Kansas City, Mo.....	90	12.0	12.1	7	7	64
Knoxville.....	29	14.3	13.9	5	1	117
White.....	23	—	—	5	1	130
Colored.....	6	(⁵)	(⁵)	0	0	0
Los Angeles.....	206	—	—	17	28	52
Louisville.....	64	10.1	12.2	2	7	17
White.....	54	—	—	2	6	20
Colored.....	10	(⁵)	(⁵)	0	1	0
Lowell.....	27	—	—	1	0	24
Lynn.....	14	6.9	12.9	5	3	126
Memphis.....	81	22.2	22.5	10	6	119
White.....	45	—	—	5	5	92
Colored.....	36	(⁵)	(⁵)	5	1	169
Milwaukee.....	80	7.7	11.7	7	10	35
Minneapolis.....	80	9.1	11.9	8	11	52
Nashville.....	39	14.6	12.7	4	6	62
White.....	20	—	—	2	5	41
Colored.....	19	(⁵)	(⁵)	2	1	127
New Bedford.....	30	—	—	5	1	128
New Haven.....	43	11.9	13.6	3	4	58
New Orleans.....	145	17.6	19.2	10	18	58
White.....	84	—	—	8	7	71
Colored.....	61	(⁵)	(⁵)	2	11	34
New York.....	1,416	12.3	12.5	123	140	52
Bronx Borough.....	203	11.1	11.2	8	18	19
Brooklyn Borough.....	446	10.1	10.6	50	44	53
Manhattan Borough.....	588	17.5	17.2	55	58	90
Queens Borough.....	143	8.7	8.7	10	16	29
Richmond Borough.....	35	12.5	18.3	0	4	0
Newark, N. J.....	88	9.7	10.0	7	13	37
Oakland.....	70	13.3	10.1	5	6	60
Oklahoma City.....	39	—	—	4	3	79
Omaha.....	54	12.6	15.4	4	6	45
Paterson.....	31	11.2	13.7	4	6	70
Philadelphia.....	448	11.3	10.8	43	29	64
Pittsburgh.....	185	14.3	13.9	20	23	73
Portland, Oreg.....	74	—	—	1	2	12
Providence.....	61	11.1	11.7	4	3	37
Richmond.....	44	11.8	15.6	7	7	104
White.....	25	—	—	4	4	90
Colored.....	19	(⁵)	(⁵)	3	3	131
Rochester.....	55	8.7	11.6	5	5	44
St. Louis.....	206	12.7	13.4	12	15	39
St. Paul.....	52	—	—	3	5	30
Salt Lake City ⁴	32	12.1	12.5	4	2	63
San Antonio.....	103	25.3	16.0	32	24	—
San Diego.....	39	—	—	1	3	21
San Francisco.....	155	13.8	11.9	7	11	48
Schenectady.....	23	12.9	15.6	1	3	31
Seattle.....	72	9.8	10.2	2	8	20

Footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended May 31, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929—Continued.

City	Week ended May 31, 1930		Annual death rate per 1,000 corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended May 31, 1930 ¹
	Total deaths	Death rate ¹		Week ended May 31, 1930	Corresponding week, 1929	
Somerville.....	14	7.1	7.1	0	2	0
Spokane.....	26	12.4	16.2	1	4	26
Springfield, Mass.....	32	11.1	13.6	2	6	32
Syracuse.....	63	16.5	12.6	4	1	50
Tacoma.....	24	11.3	9.9	3	1	77
Toledo.....	54	9.0	11.0	1	8	9
Trenton.....	41	15.4	13.9	8	1	149
Utica.....	23	11.5	12.5	3	1	85
Washington, D. C.....	122	11.5	13.1	5	8	29
White.....	84			2	2	17
Colored.....	34	(9)	(9)	3	6	53
Waterbury.....	11			0	2	0
Wilmington, Del.....	33	13.4	12.2	1	4	23
Worcester.....	44	11.6	10.8	4	2	52
Yonkers.....	8	3.4	10.3	0	1	0
Youngstown.....	30	9.0	17.1	4	9	63

¹ Annual rate per 1,000 population.

² Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.

³ Data for 73 cities

⁴ Deaths for week ended Friday.

⁵ In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended May 31, 1930, and June 1, 1929

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended May 31, 1930, and June 1, 1929

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended May 31, 1930	Week ended June 1, 1929	Week ended May 31, 1930	Week ended June 1, 1929	Week ended May 31, 1930	Week ended June 1, 1929	Week ended May 31, 1930	Week ended June 1, 1929
New England States:								
Maine.....			9	4	98	131	1	0
New Hampshire.....			2		18	76	0	0
Vermont.....	1				30	1	0	0
Massachusetts.....	57	54	1	4	1,124	465	9	3
Rhode Island.....	3	8			15	49	0	1
Connecticut.....	10	17	2	5	26	219	2	1
Middle Atlantic States:								
New York.....	104	293	117	110	1,927	748	6	33
New Jersey.....	68	109			846	239	2	9
Pennsylvania.....	105	127			1,327	2,074	13	12
East North Central States:								
Ohio.....	70	75	7	10	629	2,508	7	26
Indiana.....	10	11			140	444	3	3
Illinois.....	112	200	4	11	351	1,777	8	18
Michigan.....	43	62	4	5	913	677	26	71
Wisconsin.....	16	25	12	12	798	1,372	4	3
West North Central States:								
Minnesota.....	23	14	1	1	196	341	1	1
Iowa.....	6	7			167	83	2	1
Missouri.....	30	55	1	1	56	146	4	16
North Dakota.....	6	33			16	130	0	4
South Dakota.....	7	3				23	0	1
Nebraska.....	12	8		3	224	484	1	1
Kansas.....	13	3	1	1	365	708	2	5
South Atlantic States:								
Delaware.....	3	3			2	14	0	0
Maryland.....	24	11	7	10	69	46	4	1
District of Columbia.....	0	11			68	28	0	0
Virginia.....								
West Virginia.....	7	8	2	14	103	195	2	0
North Carolina.....	20	17	4		55	16	3	2
South Carolina.....	4	7	216	198		8	0	0
Georgia.....	1	2	24	12	140	46	1	0
Florida.....	5	8	2	1	120	76	0	0

¹ New York City only.

² Week ended Friday.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended May 31, 1930, and June 1, 1929—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended May 31, 1930	Week ended June 1, 1929	Week ended May 31, 1930	Week ended June 1, 1929	Week ended May 31, 1930	Week ended June 1, 1929	Week ended May 31, 1930	Week ended June 1, 1929
East South Central States:								
Kentucky.....		5					3	2
Tennessee.....	4	1	17	18	180	22	3	2
Alabama.....	7	5	33	17	71	48	2	0
Mississippi.....	11	8					1	1
West South Central States:								
Arkansas.....	1	3	7	2	23	4	0	6
Louisiana.....	9	9	9	5	28	37	1	0
Oklahoma ¹	13	5	14	10	185	31	0	1
Texas.....	17	15	12	34	217	172	1	0
Mountain States:								
Montana.....	1	3			10	35	0	0
Idaho.....	1				11	83	0	0
Wyoming.....	6	1			45	29	0	0
Colorado.....	9	6			686	237	1	3
New Mexico.....	7				65	8	1	1
Arizona.....	2	1	4		114	1	2	4
Utah ¹	1			2	264	3	4	5
Pacific States:								
Washington.....	6	1			102	150	3	6
Oregon.....	6	10	14	7	82	205	0	2
California.....	58	51	18	16	1,977	133	6	14
Division and State	Polymyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended May 31, 1930	Week ended June 1, 1929	Week ended May 31, 1930	Week ended June 1, 1929	Week ended May 31, 1930	Week ended June 1, 1929	Week ended May 31, 1930	Week ended June 1, 1929
New England States:								
Maine.....	0	0	27	43	0	0	2	-----
New Hampshire.....	0	0	5	10	0	0	0	0
Vermont.....	0	0	7	16	0	6	0	0
Massachusetts.....	0	2	205	200	0	3	7	9
Rhode Island.....	0	0	23	15	0	0	1	1
Connecticut.....	0	0	34	41	0	0	1	1
Middle Atlantic States:								
New York.....	2	1	296	401	3	2	8	15
New Jersey.....	0	0	121	125	0	0	2	7
Pennsylvania.....	0	1	350	318	1	0	9	18
East North Central States:								
Ohio.....	0	1	293	291	145	84	6	17
Indiana.....	0	0	56	169	8	118	1	6
Illinois.....	0	0	270	370	65	117	11	9
Michigan.....	1	2	171	393	33	50	0	4
Wisconsin.....	0	1	122	144	6	32	1	2
West North Central States:								
Minnesota.....	1	0	57	77	6	8	5	2
Iowa.....	0	1	36	94	71	51	0	0
Missouri.....	0	0	96	52	38	23	4	11
North Dakota.....	1	1	15	22	3	25	1	0
South Dakota.....	0	0	10	18	19	17	0	2
Nebraska.....	0	0	29	85	51	43	0	0
Kansas.....	0	0	52	79	33	53	3	2
South Atlantic States:								
Delaware.....	0	0	8	1	0	0	0	1
Maryland ¹	1	0	51	183	0	0	6	6
District of Columbia.....	0	0	11	15	0	0	1	1
Virginia.....	1							
West Virginia.....	0	0	23	12	0	22	9	6
North Carolina.....	2	1	16	24	16	3	5	18
South Carolina.....	3	1	4	0	5	4	51	39
Georgia.....	0	0	6	7	0	0	1	13
Florida.....	0	0	5	3	1	0	4	3

¹ Week ended Friday.² Figures for 1930 are exclusive of Oklahoma City and Tulsa.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended May 31, 1930, and June 1, 1929—Continued

Division and State	Polio-myelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended May 31, 1930	Week ended June 1, 1929	Week ended May 31, 1930	Week ended June 1, 1929	Week ended May 31, 1930	Week ended June 1, 1929	Week ended May 31, 1930	Week ended June 1, 1929
East South Central States:								
Kentucky.....	0	0	30	84	4	32	1	0
Tennessee.....	0	0	11	9	17	22	8	17
Alabama.....	1	0	4	13	4	1	9	10
Mississippi.....	1	0	5	10	5	1	11	14
West South Central States:								
Arkansas.....	0	1	4	15	0	1	4	8
Louisiana.....	7	0	2	36	14	0	18	6
Oklahoma ¹	0	0	18	26	53	39	3	2
Texas.....	2	0	26	50	35	45	3	7
Mountain States:								
Montana.....	0	1	15	25	2	12	2	0
Idaho.....	0	0	2	2	2	5	0	0
Wyoming.....	0	0	10	0	5	9	0	2
Colorado.....	0	0	13	20	3	13	5	3
New Mexico.....	0	0	13	8	3	1	5	0
Arizona.....	2	0	14	0	6	1	4	3
Utah ¹	0	0	1	2	1	5	0	0
Pacific States:								
Washington.....	1	0	17	21	29	40	0	1
Oregon.....	0	1	14	9	27	21	1	3
California.....	15	3	94	296	35	28	13	5

¹ Week ended Friday.

¹ Figures for 1930 are exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week

State	Menin- gococ- cus menin- gitis	Diph- theria	Influ- enza	Ma- laria	Mea- sles	Pel- lagra	Polo- mye- litis	Scarlet fever	Small- pox	Ty- phoid fever
<i>February, 1930</i>										
Colorado.....	8	40	4		514		1	100	132	2
<i>March, 1930</i>										
Colorado.....	8	30	8		1,345		0	88	65	12
<i>April, 1930</i>										
California.....	48	276	109	7	11,707	10	16	780	497	57
Montana.....	7	13			90		0	152	58	6
South Dakota.....	1	16	8		488		0	84	299	1
Virginia.....	11	81	1,708	34	3,757	58	4	172	48	28
Wisconsin.....	12	57	121		2,988		1	795	70	6

<i>February, 1930</i>	Cases
Colorado:	
Chicken pox.....	275
German measles.....	7
Impetigo contagiosa.....	2
Mumps.....	368
Tularaemia.....	1
Vincent's angina.....	1
Whooping cough.....	180

<i>March, 1930</i>	Cases
Colorado:	
Chicken pox.....	351
German measles.....	7
Mumps.....	508
Ophthalmia neonatorum.....	1
Rocky Mountain spotted or tick fever.....	1
Vincent's angina.....	1
Whooping cough.....	294

April, 1930		Ophthalmia neonatorum:	
	Cases		Cases
Chicken pox:		California.....	1
California.....	2, 739	Paratyphoid fever:	
Montana.....	50	California.....	3
South Dakota.....	127	Rabies in animals:	
Virginia.....	785	California.....	96
Wisconsin.....	1, 227	Rocky Mountain spotted or tick fever:	
Dysentery:		California.....	7
California (amebic).....	12	Montana.....	6
California (bacillary).....	9	Septic sore throat:	
Dysentery and diarrhea:		Montana.....	1
Virginia.....	102	South Dakota.....	1
Food poisoning:		Tetanus:	
California.....	29	California.....	4
German measles:		Trachoma:	
California.....	121	California.....	18
Montana.....	4	South Dakota.....	1
Granuloma, coccidial:		Trichinosis:	
California.....	2	California.....	31
Hookworm disease:		South Dakota.....	4
California.....	5	Undulant fever:	
Leprosy:		California.....	7
California.....	1	Virginia.....	1
Lethargic encephalitis:		Wisconsin.....	3
California.....	5	Whooping cough:	
Wisconsin.....	1	California.....	1, 200
Mumps:		Montana.....	36
California.....	4, 128	South Dakota.....	99
Montana.....	262	Virginia.....	1, 177
South Dakota.....	41	Wisconsin.....	817
Wisconsin.....	840		

Cases of Certain Communicable Diseases Reported for the Month of February, 1930, by State Health Officers

	Chick- en pox	Diph- theria	Meas- les	Mumps	Scarlet fever	Small- pox	Tuber- culo- sis	Ty- phoid and para- typhoid fever	Whoop- ing cough
Maine.....	224	15	74	287	233	0	37	17	181
New Hampshire.....		4			63	0		0	
Vermont.....	251	5	44	5	47	14	15	1	32
Massachusetts.....	1, 024	362	2, 008	876	1, 170	1	551	14	1, 337
Rhode Island.....	71	48	13	2	135	0	32	2	154
Connecticut.....	579	87	87	160	499	0	95	2	222
New York.....	2, 756	577	2, 449	2, 142	2, 128	22	1, 444	85	1, 645
New Jersey.....	1, 312	448	1, 714		1, 016	0	422	6	586
Pennsylvania.....	2, 752	627	3, 077	1, 425	2, 005	10		51	1, 551
Ohio.....	1, 863	251	2, 488	785	1, 396	825	614	37	851
Indiana.....	379	146	256	38	985	809	177	13	125
Illinois.....	1, 447	633	2, 337	786	2, 541	493	742	22	811
Michigan.....	926	281	2, 028	591	1, 365	311	467	11	577
Wisconsin.....	1, 320	84	4, 273	823	727	158	151	7	963
Minnesota.....	366	48	1, 023		575	33	206	11	223
Iowa.....		41			441	300		3	
Missouri.....	542	164	518	151	554	336	227	7	154
North Dakota.....	120	16	247	226	148	136	25	1	69
South Dakota.....	75	12	608	32	226	295	8	3	39
Nebraska.....	259	71	2, 459	122	418	236	14	2	63
Kansas.....	556	57	1, 638	601	571	293	129	6	330
Delaware.....	40	10	28		41	0	13	0	3
Maryland.....	607	108	53	76	400	0	199	12	186
District of Columbia.....	99	64	48		83	0	76	5	20
Virginia.....	753	174	1, 572		268	27	173	9	1, 070
West Virginia.....	284	39	295		197	141	35	31	189
North Carolina.....	960	145	46		224	79		12	1, 137
South Carolina.....	284	97	26	148	72	7	121	24	523
Georgia.....	155	43	732	155	100	2	64	8	109
Florida.....	329	45	445	378	45	8	30	14	43
Kentucky ¹									
Tennessee.....	134	42	695	32	151	84	93	13	109

¹ Reports received weekly.

Cases of Certain Communicable Diseases Reported for the Month of February, 1930, by State Health Officers—Continued

	Chick- en pox	Diph- theria	Meas- les	Mumps	Scarlet fever	Small- pox	Tuber- culo- sis	Ty- phoid and para- typhoid fever	Whoop- ing cough
Alabama.....	414	117	385	77	109	18	273	15	204
Mississippi.....	1,131	80	385	608	79	28	306	31	1,202
Arkansas.....	255	23	35	172	80	63	141	18	32
Louisiana.....	71	69	428	8	78	25	135	37	46
Oklahoma ¹	82	80	518	31	165	391	42	28	63
Texas ²	44	3	129	525	172	43	26	9	21
Montana.....	43	85	347	63	45	71	9	2	16
Idaho.....	10	7	90	67	30	33		1	20
Wyoming.....	275	40	514	368	100	152	93	2	180
Colorado.....	104	36	319	110	64	4	66	5	26
New Mexico.....	74	33	20	233	58	93	145	13	39
Arizona.....	42	4	66	9	24	5	7	0	1
Utah ¹	540	43	788	453	281	314	147	33	229
Nevada.....	190	32	79	175	185	65	56	10	153
Washington.....	2,355	276	4,798	3,076	1,221	457	833	34	623
Oregon.....									
California.....									

¹ Pulmonary.² Reports received weekly³ Exclusive of Oklahoma City and Tulsa

Case Rates per 1,000 Population (Annual Basis) for the Month of February, 1930

[The rates here given have been calculated by use of populations as of July 1, 1930, approximated, authoritative estimates not being available, and may prove to be inaccurate when the results of the fifteenth census are known]

	Chick- en pox	Diph- theria	Meas- les	Mumps	Scarlet fever	Small- pox	Tuber- culo- sis	Ty- phoid and para- typhoid fever	Whoop- ing cough
Maine.....	3.65	0.24	1.21	4.68	3.80	0	0.60	0.28	2.95
New Hampshire.....		11			1.79	0		0	
Vermont.....	9.28	1.18	1.63	18	1.74	52	.55	.64	1.18
Massachusetts.....	3.04	1.08	5.97	2.60	3.50	0	1.64	.64	3.97
Rhode Island.....	1.25	.85	.23	.04	2.34	0	.58	.04	2.71
Connecticut.....	4.37	.66	.66	1.21	3.76	0	.72	.02	1.67
New York.....	3.34	.64	2.70	2.36	2.85	.62	1.59	.02	1.82
New Jersey.....	4.31	1.47	5.64		3.34	0	1.39	.02	1.93
Pennsylvania.....	3.55	.81	3.97	1.84	2.50	.61	1.13	.07	2.00
Ohio.....	3.44	.46	4.60	1.45	2.58	1.52	1.13	.07	1.57
Indiana.....	1.53	.59	1.03	15	3.98	3.27	.71	.05	.50
Illinois.....	2.48	1.09	4.01	1.35	4.36	.85	1.27	.04	1.39
Michigan.....	2.52	.76	5.52	1.61	3.71	.85	1.27	.03	1.77
Wisconsin.....	5.73	.36	18.43	3.55	3.13	.63	.65	.03	4.15
Minnesota.....	1.71	.22	4.77		2.68	15	.96	.05	1.04
Iowa.....		.22			2.39	1.61		.62	
Missouri.....	1.99	.60	1.90	.55	2.03	1.23	.83	.03	.57
North Dakota.....	2.62	.33	5.02	4.59	3.01	2.76	.51	.62	1.40
South Dakota.....	1.36	.22	11.01	.58	4.09	5.34	.14	.05	.71
Nebraska.....	2.36	.65	22.38	1.11	3.81	2.15	.13	.02	.57
Kansas.....	3.92	.40	11.55	4.24	4.03	2.07	.91	.04	2.33
Delaware.....	2.12	.53	1.48		2.17	0		0	.16
Maryland.....	4.78	.85	.42	.60	3.15	0	1.57	.09	1.47
District of Columbia.....	2.22	1.43	1.08		1.86	0	1.70	.11	.65
Virginia.....	3.73	.86	7.78		1.33	.13	.86	.04	5.34
West Virginia.....	2.08	.29	2.16		1.44	1.03	.26	.23	1.37
North Carolina.....	4.14	.63	.20		1.01	.34		.05	4.88
South Carolina.....	1.95	.66	.18	1.01	.49	.05	.83	.16	3.58
Georgia.....	.62	.17	2.92	.62	.40	.01	.26	.03	.43
Florida.....	2.85	.39	3.85	3.27	.39	.07	.26	.12	.37
Oklahoma ¹.....	.48	.47	3.06	.18	.98	2.31	.25	.17	.37
Kentucky ¹									
Tennessee.....	.69	.22	3.57	.16	.78	.43	.48	.07	.56
Alabama.....	2.06	.58	1.91	.38	.54	.09	1.36	.07	1.01
Mississippi.....	8.23	.58	2.80	4.43	.58	.20	2.23	.23	8.75
Arkansas.....	1.67	.15	.23	1.13	.53	.41	1.27	.12	.21
Louisiana.....	.47	.45	2.81	.05	.51	.16	1.89	.24	.30
Oklahoma ¹.....	.48	.47	3.06	.18	.98	2.31	.25	.17	.37

¹ Pulmonary.² Reports received weekly.³ Exclusive of Oklahoma City and Tulsa.

**Case Rates per 1,000 Population (Annual Basis) for the Month of February,
1930—Continued**

	Chick- en pox	Diph- theria	Meas- les	Mumps	Scarlet fever	Small- pox	Tuber- culosis	Ty- phoid and para- typhoid fever	Whoop- ing cough
Texas ¹									
Montana.....	1.04	.07	3.06	12.47	4.08	1.02	.62	.21	.50
Idaho.....	.98	1.94	7.94	1.44	1.03	1.62	.21	.05	.37
Wyoming.....	.50	.35	4.98	3.37	1.51	1.66	.....	.05	1.01
Colorado.....	3.19	.46	5.97	4.28	1.16	1.77	1.08	.02	2.09
New Mexico.....	3.36	1.16	11.26	3.55	2.07	.13	2.13	.16	.84
Arizona.....	1.91	.85	.52	6.03	1.50	2.41	3.75	.34	1.01
Utah ²									
Nevada.....	.71	.07	1.11	.15	.40	.08	.12	0	1.02
Washington.....	4.30	.34	6.27	3.61	2.24	2.50	1.17	.26	1.82
Oregon.....	2.67	.45	1.11	2.46	2.60	.92	.79	.14	2.15
California.....	6.39	.75	13.03	8.35	3.32	1.27	2.26	.09	1.69

¹ Reports received weekly

**GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM
CITIES**

The 97 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 32,050,000. The estimated population of the 90 cities reporting deaths is more than 30,460,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended May 24, 1930, and May 25, 1929

	1930	1929	Estimated expectancy
<i>Cases reported</i>			
Diphtheria:			
46 States.....	937	1,555	.....
97 cities.....	490	816	800
Measles:			
46 States.....	17,243	14,555	.....
97 cities.....	7,121	5,774	.....
Meningococcus meningitis:			
46 States.....	126	231	.....
97 cities.....	63	132	.....
Poliomyelitis:			
47 States.....	25	18	.....
Scarlet fever:			
46 States.....	3,219	4,177	.....
97 cities.....	1,295	1,026	1,164
Smallpox:			
46 States.....	1,067	1,060	.....
97 cities.....	123	63	65
Typhoid fever:			
46 States.....	220	288	.....
97 cities.....	45	48	48
<i>Deaths reported</i>			
Influenza and pneumonia:			
90 cities.....	641	725	.....
Smallpox:			
90 cities.....	0	0	.....

City reports for week ended May 24, 1930

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during non-epidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1921 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND								
Maine:								
Portland.....	9	1	0	-----	1	2	35	4
New Hampshire:								
Concord.....	0	0	0	-----	0	0	0	0
Manchester.....	0	1	0	-----	0	0	0	0
Nashua.....	0	0	0	-----	0	1	0	0
Vermont:								
Barre.....	1	0	0	-----	0	17	0	0
Burlington.....	0	0	0	-----	0	0	0	0
Massachusetts:								
Boston.....	51	37	14	2	0	585	52	24
Fall River.....	4	3	0	-----	0	1	4	1
Springfield.....	4	2	3	-----	0	0	1	0
Worcester.....	8	2	7	-----	0	162	2	0
Rhode Island:								
Pawtucket.....	3	1	0	-----	0	1	0	2
Providence.....	10	6	4	-----	0	0	0	9
Connecticut:								
Bridgeport.....	1	5	0	-----	1	1	2	2
Hartford.....	1	5	0	2	0	3	1	1
New Haven.....	16	1	0	1	0	4	8	2
MIDDLE ATLANTIC								
New York:								
Buffalo.....	20	11	0	-----	1	22	19	13
New York.....	192	259	101	5	6	1,616	195	184
Rochester.....	3	7	0	-----	0	45	3	3
Syracuse.....	18	4	1	-----	0	13	58	4
New Jersey:								
Camden.....	1	7	3	-----	0	3	1	3
Newark.....	18	13	22	-----	0	183	24	12
Trenton.....	1	2	2	-----	0	3	0	0
Pennsylvania:								
Philadelphia.....	95	59	12	13	5	307	106	46
Pittsburgh.....	43	15	21	-----	4	212	22	22
Reading.....	3	2	0	-----	0	2	10	0
Scranton.....	0	3	1	-----	-----	1	1	-----
EAST NORTH CENTRAL								
Ohio:								
Cincinnati.....	4	6	2	-----	0	122	10	4
Cleveland.....	91	23	12	1	0	7	55	15
Columbus.....	19	3	6	-----	0	85	7	5
Toledo.....	28	4	4	-----	0	34	12	2
Indiana:								
Fort Wayne.....	2	1	0	-----	1	0	0	1
Indianapolis.....	28	3	1	-----	0	15	6	14
South Bend.....	0	0	2	-----	0	0	0	0
Terre Haute.....	2	1	0	-----	0	52	0	1
Illinois:								
Chicago.....	92	82	111	3	3	41	46	58
Springfield.....	2	0	1	-----	0	10	0	1

City reports for week ended May 24, 1930—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneu- monia, deaths reported
		Cases, estimated expect- ancy	Cases reported	Cases reported	Deaths reported			
EAST NORTH CENTRAL—continued								
Michigan:								
Detroit.....	58	42	49	4	3	572	75	15
Flint.....	5	2	0	0	0	169	4	2
Grand Rapids.....	3	0	0	0	0	3	0	1
Wisconsin:								
Kenosha.....	3	0	0	0	0	0	0	1
Madison.....	3	0	0	0	0	17	1	0
Milwaukee.....	77	11	2	1	1	19	119	9
Racine.....	2	1	0	0	0	10	0	1
Superior.....	4	0	0	0	0	0	1	0
WEST NORTH CENTRAL								
Minnesota:								
Duluth.....	4	0	0	0	0	39	0	0
Minneapolis.....	60	14	3	0	0	34	46	2
St. Paul.....	13	8	0	0	0	2	3	2
Iowa:								
Davenport.....	0	0	1	0	0	5	0	0
Des Moines.....	2	1	0	0	0	1	2	0
Sioux City.....	4	1	0	0	0	71	9	0
Waterloo.....	5	0	0	0	0	3	0	0
Missouri:								
Kansas City.....	27	3	5	0	0	6	4	8
St. Joseph.....	0	0	0	0	0	0	0	2
St. Louis.....	15	33	20	0	0	31	12	12
North Dakota:								
Fargo.....	0	0	0	0	0	3	26	1
Grand Forks.....	0	0	0	0	0	1	0	0
South Dakota:								
Aberdeen.....	5	0	0	0	0	50	1	0
Sioux Falls.....	0	0	0	0	0	5	0	0
Nebraska:								
Omaha.....	11	2	8	0	0	39	1	8
Kansas:								
Topeka.....	20	1	0	0	0	113	9	1
Wichita.....	4	1	1	0	0	69	5	4
SOUTH ATLANTIC								
Delaware:								
Wilmington.....	5	0	0	0	0	2	0	3
Maryland:								
Baltimore.....	105	21	13	1	1	24	13	17
Cumberland.....	1	0	0	0	0	0	0	0
Frederick.....	1	0	0	0	0	0	0	0
District of Columbia:								
Washington.....	28	9	7	0	0	40	0	10
Virginia:								
Lynchburg.....	6	1	0	0	0	21	4	0
Norfolk.....	25	0	0	0	0	10	57	2
Richmond.....	1	1	0	0	0	2	1	4
Roanoke.....	2	1	1	0	0	220	1	1
West Virginia:								
Charleston.....	19	0	0	0	0	0	5	3
Wheeling.....	7	0	0	0	0	6	0	2
North Carolina:								
Raleigh.....	0	0	0	0	0	0	0	0
Wilmington.....	2	0	0	0	0	0	9	0
Winston-Salem.....	7	0	0	0	0	4	14	2
South Carolina:								
Charleston.....	1	0	1	6	0	1	0	1
Columbia.....	1	0	0	0	1	0	4	2
Georgia:								
Atlanta.....	4	2	4	1	0	48	7	8
Brunswick.....	0	0	0	0	0	0	0	0
Savannah.....	2	0	1	0	0	14	0	1
Florida:								
Miami.....	1	1	0	0	0	8	2	1
St. Petersburg.....	1	1	0	0	0	0	0	0
Tampa.....	2	1	0	0	1	96	0	0

City reports for week ended May 24, 1930—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST SOUTH CENTRAL								
Kentucky:								
Covington.....	1	0	0	-----	0	4	0	1
Tennessee:								
Memphis.....	17	0	2	-----	0	3	4	2
Nashville.....	0	0	0	-----	1	60	0	1
Alabama:								
Birmingham.....	4	1	1	1	2	18	2	7
Mobile.....	0	1	1	-----	0	9	2	1
Montgomery.....	11	0	0	1	-----	1	0	-----
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith.....	0	0	0	-----	-----	12	0	-----
Little Rock.....	2	0	1	2	0	0	0	2
Louisiana:								
New Orleans.....	3	6	5	1	2	3	0	8
Shreveport.....	0	0	0	-----	0	5	3	1
Oklahoma:								
Tulsa.....	5	1	0	-----	-----	30	0	-----
Texas:								
Dallas.....	8	3	5	-----	0	135	0	4
Fort Worth.....	4	2	0	0	1	14	0	5
Galveston.....	0	0	1	-----	0	0	0	1
Houston.....	0	3	2	-----	0	1	0	5
San Antonio.....	0	1	1	-----	0	1	0	2
MOUNTAIN								
Montana:								
Billings.....	0	0	0	-----	0	16	0	4
Great Falls.....	6	0	0	-----	0	0	12	0
Helena.....	0	0	0	-----	0	0	0	0
Missoula.....	0	0	0	-----	0	1	0	0
Idaho:								
Boise.....	2	0	0	-----	0	17	1	2
Colorado:								
Denver.....	15	9	4	-----	1	454	19	7
Pueblo.....	6	1	0	-----	0	28	79	0
New Mexico:								
Albuquerque.....	2	1	0	-----	0	10	6	0
Arizona:								
Phoenix.....	0	0	0	-----	0	3	0	3
Utah:								
Salt Lake City.....	11	3	2	-----	0	291	3	1
Nevada:								
Reno.....	0	0	0	-----	0	1	0	0
PACIFIC								
Washington:								
Seattle.....	25	2	0	-----	-----	422	86	-----
Spokane.....	14	2	2	-----	-----	1	0	-----
Tacoma.....	-----	1	-----	-----	-----	-----	-----	-----
Oregon:								
Salem.....	15	0	1	-----	-----	1	0	-----
California:								
Los Angeles.....	39	24	16	4	0	359	63	7
Sacramento.....	5	2	3	-----	0	32	36	3
San Francisco.....	38	16	7	1	1	72	69	3

City reports for week ended May 24, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
NEW ENGLAND											
Maine:											
Portland.....	2	2	0	0	0	2	0	0	0	1	20
New Hampshire:											
Concord.....	1	0	0	0	0	0	0	0	0	0	5
Manchester.....	1	0	0	0	0	1	0	0	0	0	8
Nashua.....	1	0	0	0	0	0	0	0	0	0	-----
Vermont:											
Barre.....	0	0	0	0	0	1	0	0	0	0	3
Burlington.....	0	0	0	0	0	0	0	0	0	0	3
Massachusetts:											
Boston.....	60	72	0	0	0	12	1	3	1	44	228
Fall River.....	3	4	0	0	0	5	0	0	0	2	25
Springfield.....	6	3	0	0	0	2	0	0	0	4	30
Worcester.....	7	20	0	0	0	3	1	1	0	15	50
Rhode Island:											
Pawtucket.....	2	3	0	0	0	0	0	0	0	2	14
Providence.....	9	9	0	0	0	4	1	3	0	9	69
Connecticut											
Bridgeport.....	10	5	0	0	0	3	0	0	0	2	28
Hartford.....	4	4	0	0	0	0	1	0	0	5	22
New Haven.....	5	8	0	0	0	1	0	1	0	6	41
MIDDLE ATLANTIC											
New York:											
Buffalo.....	23	22	0	0	0	14	0	0	0	22	162
New York.....	253	217	0	0	0	114	9	5	1	68	1,510
Rochester.....	10	15	0	0	0	3	1	2	1	3	69
Syracuse.....	8	16	0	1	0	3	0	0	0	57	53
New Jersey:											
Camden.....	5	7	0	0	0	0	1	0	0	1	26
Newark.....	24	31	0	0	0	9	0	0	0	12	131
Trenton.....	3	4	0	0	0	2	0	0	0	2	31
Pennsylvania:											
Philadelphia.....	85	108	0	0	0	33	2	2	0	24	423
Pittsburgh.....	31	27	0	0	0	15	0	0	0	33	175
Reading.....	4	2	0	0	0	0	0	0	0	3	16
Seranton.....	2	2	0	0	0	0	0	0	0	1	-----
EAST NORTH CENTRAL											
Ohio:											
Cincinnati.....	14	12	2	0	0	6	0	0	0	7	101
Cleveland.....	38	65	0	0	0	9	1	2	1	50	198
Columbus.....	7	1	2	1	0	4	0	3	0	3	78
Toledo.....	8	10	0	5	0	4	0	0	0	0	54
Indiana:											
Fort Wayne.....	3	0	2	4	0	0	1	0	0	0	23
Indianapolis.....	13	15	8	5	0	4	0	1	1	9	-----
South Bend.....	3	5	1	0	0	1	0	0	0	1	22
Terre Haute.....	1	6	0	1	0	0	0	0	0	4	15
Illinois:											
Chicago.....	106	62	2	0	0	54	2	1	0	62	704
Springfield.....	4	1	0	0	0	1	0	0	0	2	16
Michigan:											
Detroit.....	95	108	1	0	0	40	2	1	1	88	322
Flint.....	8	12	2	5	0	3	0	0	0	19	34
Grand Rapids.....	7	11	0	0	0	0	0	0	0	7	43
Wisconsin:											
Kenosha.....	1	10	0	0	0	0	0	0	0	12	7
Madison.....	2	10	0	0	0	0	0	0	0	10	20
Milwaukee.....	4	41	1	0	0	3	1	0	0	37	105
Racine.....	27	13	0	0	0	0	0	0	0	8	21
Superior.....	2	4	0	0	0	1	0	0	0	0	7
WEST NORTH CENTRAL											
Minnesota:											
Duluth.....	7	0	0	0	0	0	1	3	1	17	21
Minneapolis.....	35	24	2	1	0	1	1	0	0	2	78
St. Paul.....	21	5	0	0	0	2	0	0	0	18	60

City reports for week ended May 24, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culosis, deaths re-ported	Typhoid fever			Whoop- ing cough, cases re-ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
WEST NORTH CEN- TRAL—CON.											
Iowa:											
Davenport.....	1	1	1	31	-----	-----	0	0	-----	0	-----
Des Moines.....	5	7	2	0	-----	-----	0	0	-----	4	35
Sioux City.....	1	2	0	3	-----	-----	0	0	-----	9	-----
Waterloo.....	2	1	0	20	-----	-----	0	0	-----	2	-----
Missouri:											
Kansas City.....	10	22	1	2	0	6	2	0	0	18	88
St. Joseph.....	2	6	1	0	0	1	0	0	0	0	17
St. Louis.....	27	70	2	11	0	15	1	0	0	17	215
North Dakota:											
Fargo.....	1	5	0	0	0	1	0	0	0	1	7
Grand Forks.....	1	0	0	1	-----	-----	0	0	-----	0	-----
South Dakota:											
Aberdeen.....	0	1	0	0	-----	-----	0	0	-----	1	-----
Sioux Falls.....	1	0	0	1	-----	-----	0	0	-----	0	5
Nebraska:											
Omaha.....	3	10	3	17	0	0	0	0	0	3	49
Kansas:											
Topeka.....	2	3	0	3	0	0	0	0	0	28	22
Wichita.....	3	10	0	0	0	1	0	1	0	4	40
SOUTH ATLANTIC											
Delaware											
Wilmington.....	3	3	0	0	0	0	0	0	0	2	23
Maryland											
Baltimore.....	32	42	0	0	0	21	2	2	0	15	189
Cumberland.....	1	0	0	0	0	0	0	0	0	0	8
Frederick.....	0	0	0	0	0	0	0	0	0	0	4
District of Colum- bia:											
Washington.....	20	16	1	0	0	9	1	1	0	4	132
Virginia											
Lynchburg.....	0	1	0	0	0	0	0	0	0	0	10
Norfolk.....	1	3	0	0	0	3	1	0	0	7	-----
Richmond.....	3	6	0	0	0	6	0	0	0	0	48
Roanoke.....	0	0	0	0	0	1	0	0	0	10	23
West Virginia:											
Charleston.....	0	1	0	0	0	0	0	2	0	6	19
Wheeling.....	2	2	0	0	0	1	0	0	0	1	20
North Carolina:											
Raleigh.....	0	0	1	0	0	1	0	0	0	0	12
Wilmington.....	0	0	0	0	0	2	0	0	0	15	9
Winston-Salem.....	0	0	1	0	0	2	0	0	0	8	15
South Carolina:											
Charleston.....	0	0	1	0	0	4	1	0	0	3	37
Columbia.....	0	0	0	1	0	1	1	0	0	15	17
Georgia:											
Atlanta.....	3	10	5	0	0	4	1	0	0	0	63
Brunswick.....	0	0	0	0	0	0	0	0	0	0	4
Savannah.....	0	0	0	0	0	5	1	0	0	0	35
Florida:											
Miami.....	0	0	0	0	0	2	0	1	0	0	24
St. Petersburg.....	0	-----	0	-----	0	0	0	-----	0	-----	13
Tampa.....	0	1	0	0	0	5	1	1	0	0	31
EAST SOUTH CEN- TRAL											
Kentucky:											
Covington.....	1	3	1	1	0	0	0	0	0	0	18
Tennessee:											
Memphis.....	5	4	1	0	0	7	1	4	1	3	80
Nashville.....	2	6	2	4	0	2	1	0	0	3	33
Alabama:											
Birmingham.....	1	3	4	0	0	1	1	0	0	5	55
Mobile.....	0	1	0	0	0	0	0	0	0	2	26
Montgomery.....	1	0	1	0	-----	-----	0	0	-----	1	-----

¹ Nonresident.

City reports for week ended May 24, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith.....	0	2	0	0			0	0		3	
Little Rock.....	1	0	0	0	0	5	1	0	0	0	
Louisiana:											
New Orleans.....	6	10	0	0	0	0	2	2	18	3	139
Shreveport.....	1	0	1	0	0	0	0	0	0	0	37
Oklahoma:											
Tulsa.....	0	5	2	7			0	1		14	
Texas:											
Dallas.....	2	1	1	0	0	3	1	0	0	1	47
Fort Worth.....	2	0	2	0	0	2	0	0	0	0	29
Galveston.....	0	0	0	0	0	0	0	0	0	0	7
Houston.....	2	1	1	3	0	5	0	1	1	2	79
San Antonio.....	0	0	0	0	0	8	0	0	0	0	67
MOUNTAIN											
Montana:											
Billings.....	0	0	0	0	0	0	0	0	0	0	19
Great Falls.....	1	17	0	2	0	0	0	0	1	2	10
Helena.....	0	1	0	0	0	0	0	0	0	0	5
Missoula.....	0	0	0	0	0	0	0	0	0	0	4
Idaho:											
Boise.....	0	0	0	0	0	1	0	0	0	13	9
Colorado:											
Denver.....	10	14	0	1	0	10	0	0	0	34	90
Pueblo.....	1	0	1	0	0	2	1	0	0	5	8
New Mexico:											
Albuquerque.....	0	4	0	1	0	2	0	0	0	1	9
Arizona:											
Phoenix.....	0	0	0	1	0	3	0	1	0	0	16
Utah:											
Salt Lake City.....	2	2	1	2	0	2	0	0	0	40	29
Nevada:											
Reno.....	0	0	0	3	0	0	0	0	0	0	7
PACIFIC											
Washington:											
Seattle.....	7	11	2	2			0	0		17	
Spokane.....	5	1	5	11			0	0		10	
Tacoma.....	3		3				0				
Oregon:											
Salem.....	0	0	0	0	0	0	0	0	0	3	
California:											
Los Angeles.....	28	19	4	9	0	25	1	1	0	30	286
Sacramento.....	2	2	1	8	0	2	1	1	0	6	27
San Francisco.....	19	12	0	2	0	11	1	1	1	1	156

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Polioomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Massachusetts:									
Boston.....	2	0	0	0	0	0	1	0	0
Connecticut:									
Hartford.....	1	0	0	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
New York City.....	7	3	1	3	0	0	1	0	0
New Jersey:									
Newark.....	1	0	0	0	0	0	0	0	0
Pennsylvania:									
Pittsburgh.....	3	1	0	0	0	0	0	0	0

¹ Nonresident.

City reports for week ended May 24, 1930—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Polioomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
EAST NORTH CENTRAL									
Ohio:									
Cincinnati.....	0	1	1	0	0	0	0	0	0
Cleveland.....	1	2	0	0	0	0	0	0	0
Indiana:									
Fort Wayne.....	1	0	0	0	0	0	0	0	0
Indianapolis.....	1	3	0	0	0	0	0	0	0
Illinois:									
Chicago.....	3	4	0	0	0	0	0	0	0
Michigan:									
Detroit.....	25	7	0	0	0	0	0	0	1
Wisconsin:									
Kenosha.....	0	1	0	0	0	0	0	0	0
Madison.....	0	1	0	0	0	0	0	0	0
Milwaukee.....	0	0	0	0	0	0	0	1	0
WEST NORTH CENTRAL									
Iowa:									
Waterloo.....	2	0	0	0	0	0	0	0	0
Missouri:									
Kansas City.....	3	6	0	0	0	0	0	0	0
St. Joseph.....	0	1	0	0	0	0	0	0	0
St. Louis.....	1	1	1	1	0	0	0	0	0
SOUTH ATLANTIC¹									
West Virginia:									
Wheeling.....	2	1	0	0	0	0	0	0	0
South Carolina:									
Charleston.....	0	0	0	0	7	0	0	0	0
Georgia:									
Savannah ¹	0	0	1	0	1	0	0	0	0
Florida:									
Miami.....	0	0	0	0	0	1	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis.....	5	5	0	0	0	0	0	0	0
Alabama:									
Birmingham.....	0	1	0	0	1	0	0	0	0
Montgomery.....	0	0	0	0	1	0	0	0	0
WEST SOUTH CENTRAL									
Louisiana:									
New Orleans.....	1	1	0	0	3	2	0	1	0
Shreveport.....	0	1	0	0	0	2	0	0	0
Texas:									
Houston.....	0	0	0	0	1	4	0	0	0
MOUNTAIN									
Montana:									
Billings.....	0	1	0	0	0	0	0	0	0
Colorado:									
Denver.....	0	0	0	1	0	0	0	0	0
Utah:									
Salt Lake City.....	1	2	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle.....	2	0	0	0	0	0	0	0	0
California:									
Los Angeles.....	1	0	0	0	0	0	1	0	0
San Francisco.....	0	0	0	0	0	0	0	1	0

¹ Typhus fever, 3 cases: 1 case at Washington, D. C., and 2 cases at Savannah, Ga.

The following table gives the rates per 100,000 population for 98 cities for the 5-week period ended May 24, 1930, compared with those for a like period ended May 25, 1929. The population figures used in computing the rates are approximate estimates, authoritative figures for many of the cities not being available. The 98 cities reporting cases have an estimated aggregate population of more than 32,000,000. The 91 cities reporting deaths have more than 30,500,000 estimated population.

Summary of weekly reports from cities, April 20 to May 24, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929¹

DIPHTHERIA CASE RATES

	Week ended—									
	Apr. 20, 1930	Apr. 27, 1929	May 3, 1930	May 4, 1929	May 10, 1930	May 11, 1929	May 17, 1930	May 18, 1929	May 24, 1930	May 25, 1929
98 cities.....	93	136	85	135	79	139	² 76	124	³ 81	135
New England.....	78	110	75	81	60	118	97	94	62	108
Middle Atlantic.....	104	194	76	190	89	206	78	159	80	188
East North Central.....	114	143	131	160	104	145	⁴ 92	143	117	165
West North Central.....	66	85	66	77	44	104	⁵ 74	123	70	100
South Atlantic.....	59	58	46	69	57	64	49	62	49	49
East South Central.....	54	55	0	21	7	27	40	27	27	14
West South Central.....	108	126	101	99	78	88	71	110	56	46
Mountain.....	86	78	43	61	69	62	⁶ 0	26	51	61
Pacific.....	57	58	71	72	57	39	50	56	⁷ 70	60

MEASLES CASE RATES

98 cities.....	1,387	838	1,332	928	1,443	894	¹ 1,207	890	² 1,158	903
New England.....	1,566	561	1,779	496	2,109	480	1,688	431	1,719	552
Middle Atlantic.....	1,256	153	1,353	165	1,365	186	1,410	196	1,150	196
East North Central.....	1,009	1,964	1,015	2,322	936	2,194	³ 830	2,138	692	2,286
West North Central.....	1,324	1,713	983	1,776	1,243	1,549	⁴ 659	1,753	778	1,441
South Atlantic.....	1,194	536	1,086	434	1,187	521	1,123	474	875	242
East South Central.....	459	21	209	130	499	41	405	68	641	27
West South Central.....	635	278	785	343	762	366	788	331	587	430
Mountain.....	8,573	366	5,758	444	8,891	296	⁵ 4,624	183	6,934	313
Pacific.....	2,412	377	2,069	287	2,324	422	1,949	425	⁶ 2,206	529

SCARLET FEVER CASE RATES

98 cities.....	267	295	303	299	264	289	¹ 230	290	² 211	208
New England.....	319	292	246	278	284	260	239	247	288	261
Middle Atlantic.....	252	246	300	245	281	209	224	220	215	196
East North Central.....	368	451	398	467	321	454	³ 308	472	229	449
West North Central.....	243	281	376	262	233	277	⁴ 252	281	800	208
South Atlantic.....	227	97	269	114	222	243	157	210	150	159
East South Central.....	142	109	148	226	155	130	27	103	115	137
West South Central.....	64	217	123	274	101	309	78	179	82	118
Mountain.....	223	122	352	78	360	52	⁵ 171	104	292	113
Pacific.....	205	394	128	345	151	282	149	297	⁶ 112	336

¹ The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1930 and 1929, respectively.

² South Bend, Ind., Sioux City, Iowa, and Denver, Colo., not included.

³ Tacoma, Wash., not included.

⁴ South Bend, Ind., not included.

⁵ Sioux City, Iowa, not included.

⁶ Denver, Colo., not included.

Summary of weekly reports from cities, April 20 to May 24, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929—Continued

SMALLPOX CASE RATES

	Week ended—									
	Apr. 26, 1930	Apr. 27, 1929	May 3, 1930	May 4, 1929	May 10, 1930	May 11, 1929	May 17, 1930	May 18, 1929	May 24, 1930	May 25, 1929
98 cities.....	30	13	28	12	24	11	² 22	11	² 20	14
New England.....	0	0	0	0	2	2	0	0	0	7
Middle Atlantic.....	0	0	1	0	0	0	0	0	0	0
East North Central.....	18	17	21	15	23	17	⁴ 15	14	10	20
West North Central.....	142	13	129	13	99	27	⁵ 117	15	108	15
South Atlantic.....	0	2	0	0	0	0	4	2	2	4
East South Central.....	47	0	40	21	7	27	81	14	34	27
West South Central.....	41	23	34	42	41	8	22	50	11	15
Mountain.....	94	26	146	122	77	26	⁶ 120	148	69	35
Pacific.....	128	60	85	39	97	39	54	14	³ 80	75

TYPHOID FEVER CASE RATES

	6	8	7	8	7	11	² 8	9	⁴ 7	8
98 cities.....	6	8	7	8	7	11	² 8	9	⁴ 7	8
New England.....	4	4	2	7	0	11	9	9	18	7
Middle Atlantic.....	5	4	3	5	4	3	7	6	4	5
East North Central.....	6	4	6	3	3	6	⁴ 2	3	5	3
West North Central.....	4	12	4	10	8	31	⁵ 8	6	8	8
South Atlantic.....	11	17	5	11	15	15	13	17	11	15
East South Central.....	0	21	27	27	20	27	47	0	27	75
West South Central.....	26	34	22	30	4	53	37	65	11	11
Mountain.....	0	0	51	9	17	0	⁶ 0	0	0	17
Pacific.....	5	7	7	10	24	7	2	7	³ 7	10

INFLUENZA DEATH RATES

	12	13	9	8	10	10	⁷ 8	8	² 6	10
91 cities.....	12	13	9	8	10	10	⁷ 8	8	² 6	10
New England.....	11	7	4	2	9	2	0	2	4	7
Middle Atlantic.....	9	12	10	6	10	8	7	8	8	8
East North Central.....	14	6	7	5	9	7	⁴ 4	7	5	8
West North Central.....	9	12	9	18	3	3	3	0	0	15
South Atlantic.....	11	13	15	11	5	17	18	7	5	6
East South Central.....	44	30	22	30	15	37	44	30	22	45
West South Central.....	27	43	23	8	31	27	4	4	8	27
Mountain.....	17	52	0	17	0	26	⁶ 0	17	9	9
Pacific.....	0	13	6	16	9	13	15	22	³ 3	6

PNEUMONIA DEATH RATES

	144	117	139	123	137	109	⁷ 104	106	² 104	116
91 cities.....	144	117	139	123	137	109	⁷ 104	106	² 104	116
New England.....	173	144	151	106	120	90	102	88	100	121
Middle Atlantic.....	168	130	172	136	185	123	130	114	137	129
East North Central.....	109	99	108	125	93	101	⁴ 68	115	80	118
West North Central.....	80	111	112	126	124	105	106	75	83	123
South Atlantic.....	192	127	187	109	121	109	156	120	101	94
East South Central.....	258	97	140	172	162	149	96	90	88	104
West South Central.....	142	90	119	90	176	94	84	109	88	66
Mountain.....	146	87	60	165	120	87	⁶ 51	13	120	139
Pacific.....	61	119	52	72	64	94	58	47	³ 43	82

¹ South Bend, Ind., Sioux City, Iowa, and Denver, Colo., not included.

² Tacoma, Wash., not included.

³ South Bend, Ind., not included.

⁴ Sioux City, Iowa, not included.

⁶ Denver, Colo., not included.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Week ended May 17, 1930.—The Department of Pensions and National Health reports cases of certain communicable diseases in Canada for the week ended May 17, 1930, as follows:

Province	Cerebro-spinal fever	Influenza	Poliomy- elitis	Small- pox	Typhoid fever
Prince Edward Island ¹					
Nova Scotia.....		4			
New Brunswick.....	1				1
Quebec.....	4				19
Ontario.....	2	6		24	8
Manitoba ¹					
Saskatchewan.....				6	1
Alberta.....	1		1		
British Columbia.....			1		3
Total.....	8	10	2	30	32

¹No case of any disease included in the table was reported during the week.

Quebec Province—Communicable diseases—Week ended May 24, 1930.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended May 24, 1930, as follows:

Disease	Cases	Disease	Cases
Chicken pox.....	76	Mumps.....	75
Diphtheria and croup.....	29	Scarlet fever.....	85
Erysipelas.....	4	Tuberculosis.....	87
German measles.....	42	Typhoid fever.....	7
Influenza.....	1	Whooping cough.....	27
Measles.....	116		

CHINA

Meningitis.—During the two weeks ended May 17, 1930, 7 cases of meningitis, with 5 deaths, were reported at Canton, China.

During the two weeks ended May 24, 1930, 22 cases of meningitis were reported at Shanghai, China.

CUBA

Provinces—Notifiable diseases—Four weeks ended May 10, 1930.—During the four weeks ended May 10, 1930, cases of certain diseases were reported in Cuba as follows:

Disease	Pinar del Rio	Habana	Matanzas	Santa Clara	Camaguey	Oriento	Total
Cancer.....		10			2	1	13
Chicken pox.....	5	44	3	9	1	7	69
Diphtheria.....		17	1	4		1	23
Malaria.....		12		1	10	45	68
Measles.....		5		1	1		7
Paratyphoid fever.....		4	1		1	2	8
Scarlet fever.....	1	33	2				36
Tetanus (infantile).....					1		1
Typhoid fever.....	2	16	7	36	15	24	100

DENMARK

Communicable diseases—March, 1930.—During the month of March, 1930, cases of certain communicable diseases were reported in Denmark as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis.....	8	Mumps.....	2, 598
Chicken pox.....	103	Paratyphoid fever.....	5
Diphtheria and croup.....	524	Puerperal fever.....	17
Erysipelas.....	274	Scabies.....	902
German measles.....	40	Scarlet fever.....	174
Influenza.....	5, 584	Tetanus.....	1
Jaundice.....	262	Typhoid fever.....	2
Lethargic encephalitis.....	10	Undulant fever.....	39
Measles.....	2, 523	Whooping cough.....	1, 469

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE—Continued

[C indicates cases; D, deaths; P, present]

Place	Nov. 17- 1929- Dec. 14- 1929	Dec. 15- 1929- Jan. 11- 1930	Jan. 12- Feb. 8- 1930	Feb. 9- Mar. 8- 1930	Week ended—									
					March, 1930					April, 1930				
					15	22	29	5	12	19	26	3	10	17
					May, 1930									
					24	31	7	14	21	28	4	11	18	25

Place	No- vem- ber, 1929	De- cem- ber, 1929	Janu- ary, 1930	Feb- ru- ary, 1930	March, 1930	April, 1930	Place	No- vem- ber, 1929	De- cem- ber, 1929	Janu- ary, 1930	Feb- ru- ary, 1930	March, 1930	April, 1930
British East Africa (see also table above):													
Kenya.....	157	54	34				Madagascar—Continued.	5	3		25		
Uganda.....	179	216	87				Mierinarivo Province.....	5	3		25		
Ecuador: Guayaquil.....	164	196	75				Moromanga Province.....	4	12	22	7	6	
Plague-infected rats.....	14	17	4	2	2	0	Tamatave Province.....	3	12	21	4	6	
Ecuador (outside of Guayaquil).....	3	6	2	2	2	0	Tananarive Province.....	2	2	3			
Greece (see also table above).....	9	13	4	2	2	0	Senegal:	103	97	88	110		
Indo-China (see also table above).....	2	5	2				Baoi ¹	93	98	83	107		
Madagascar (see also table above).....	1	10	10	30	27	4	Dakar ¹	23	5			18	24
Amboitra Province.....	182	254	282				Louga ¹	16	2			8	12
Antsirabe Province.....	163	248	258				Thies ¹	17	8				1
Itasy Province.....	42	111	128	49			Tivacuane ¹	5	1				33
	33	96	111	41							2		10
	5	16	26	22						3		3	12
	5	16	25	22								2	9
	10	19	31							1		11	61
	10	16	31									8	35

¹ Incomplete reports.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases, D, deaths; P, present]

Place	Nov. 15, 17- 1929	Dec. Jan. 14, 11, 1930	Jan. 12- Feb. 8, 1930	Feb. Mar. 8, 1930	Week ended—											
					March, 1930			April, 1930				May, 1930				
					15	22	29	5	12	19	26	3	10	17	24	
Greece, Patras.....	C	6	1	11				9,764								
Hedjaz.....	C	7,644	12,730	26,524	36,036			10,171								
India.....	C	1,493	3,730	6,186	7,710	2,178	2,213	1,948								
Bombay.....	C	42	119	342	638	157	114	184	143	114	89	64	52	68		
Calcutta.....	C	14	57	164	314	123	114	116	88	78	64	41	33	49		
Cochin.....	C	54	88	185	359	106	155	100	153	116	122		109	70		
	C	39	62	130	287	77	138	90	124	97	103	20	94	72		
	C	387	234	234	184	87	71	72	61	56	49	53	13	8		
	C	72	20	47	29	14	11	3	7	3	4	6	2	5		
Karachi.....	C	7	17	30	38	14	13	12	8	10	9	7	4	1		
	C	2	11	9	16	5	3	3	4	10	3	2	2	2		
Madras.....	C	64	85	105	159	38	53	43	39	55	26	27	25	24	13	
Moulmein.....	C	11	16	16	29	8	9	12	7	6	6	5	10	4	5	
	C	6	15	65	143	39	43	40	25	10		33		27	29	
Nagapatam.....	C	3	9	15	40	15	9	8	9	4				4	6	
Rangoon.....	C	1			7											
	C	1	2	7	2	5	1	3	1	1	1	2	2			
	C			4	9	2	1	2								
Tuticorin.....	C			3				53	4	1		2	3	1		
Vizagapatam.....	C		2	5	1	1	1	14	2	1			3	3		
India (French):																
Chander Nagar.....	C			3	11		4	2		4		6		6	2	
	C			5	5			2				2		2	4	
Karikal.....	C	1		3	12		10	12	2	8	9	2	2	6	5	
	C	1		3	8		5	2		3	3	2		6	1	
Pondicherry Province.....	C	7	20	22	52		9	13		12	1	11	9	9	13	
	C	7	19	19	40		6	6		11	1	8	7	7	12	
India (Portuguese).....	C	1		16	50	5	21	3	9	5	6					
	C			6	6		1	1								

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place	Week ended—																					
	March, 1930				April, 1930				May, 1930													
	15		22		29		5		12		19		26		3		10		17		24	
Turkey (see table below).																						
Union of South Africa																						
Cape Province																						
Natal																						
Orange Free State																						
Transvaal																						
Upper Volta																						
Zanzibar																						
On vessel:																						
<i>S. S.</i> Talroa, at Liverpool, from London																						
<i>S. S.</i> Karagola, at Zanzibar, from India																						
<i>S. S.</i> Karagola, at Lourenco Marques, from India																						
<i>S. S.</i> Elysia, at Port Sudan, from Bombay																						
<i>S. S.</i> Naldera, at Port Said																						
			</																			

Place	No- ven- ber, 1929	De- cem- ber, 1929	Jan- u- ary, 1930	Feb- ru- ary, 1930	March, 1930	April, 1930	Place	No- ven- ber, 1929	De- cem- ber, 1929	Jan- u- ary, 1930	Feb- ru- ary, 1930	March, 1930	April, 1930
Bolivia: La Paz	22						Nigeria	228	203				
British East Africa (see also table above)								45	70				
Kenya	278	168	12	12	6		Persia	37	P				
Chosen	2	4	1	4				136	883	215	114		3
Mexico: Durango (see also table above)	41	84	29	74	5	4	Turkey	12	437	66	42		
Morocco													

TYPHUS FEVER

Place	Week ended—											
	Nov., 1929				December, 1929				January, 1930			
	Nov. 17-19	Nov. 20-22	Nov. 23-25	Nov. 26-28	Dec. 1-3	Dec. 4-6	Dec. 7-9	Dec. 10-12	Jan. 1-3	Jan. 4-6	Jan. 7-9	Jan. 10-12
Algeria:												
Algiers	C	1	14	3	1	3	2	1	1	3	2	1
Constantine Department	C	3	2	4	3	2	1	2	2	3	4	2
Oran	C	14	1	2	1	1	1	1	1	1	1	1
Bolivia: La Paz												
Brazil: Sao Paulo ¹	C	9	41	1	2	1	1	13	9	1	15	1
Bulgaria	C	1	2	1	1	1	1	1	1	1	1	1
Sofia	C											
Cule	C											
Talcahuano	D											
Valparaiso	C											
China: Tientsin	C											
Chosen (see table below)	C											
Czechoslovakia (see table below)	C											
Egypt:												
Alexandria	C	9	1	14	5	13	5	1				
Assuan	C	7	1	14	5	13	5	2				
Behrens Province	D											
	D											2

¹ Press reports show that 10 deaths from typhus fever occurred in Sao Paulo, Brazil, from Nov. 3 to 30, 1929.

Turkey (see table below).

Union of South Africa:

Cape Province.....

Natal.....

Orange Free State.....

Transvaal.....

Yugoslavia (see table below).

Place	Octo-ber, 1929	Novem-ber, 1929	Decem-ber, 1929	Janu-ary, 1930	Febru-ary, 1930	March, 1930
Chosen: Seoul.....	C	1	17	2	42	62
Czechoslovakia.....	C	3	10	2	1	4
France.....	C	1	6	3	1	5
Greece: Athens.....	C	7	12	6	4	3
Latvia.....	C	2	18	1	26	46
Lithuania.....	C	6	1	1	1	3
Peru: Arequipa.....	C	10	1	2	3	5
Turkey.....	C	1	1	1	1	2
Yugoslavia.....	C	1	1	1	1	2

YELLOW FEVER

On April 23, 1930, two cases of yellow fever were reported in Mace, Brazil, located on the Leopoldina Railway, between Rio de Janeiro and Niteroi; one case of yellow fever was reported in Campos, Rio de Janeiro Province, Brazil, on May 23, 1930, and one case of yellow fever was reported in the Gold Coast during the week ended December 21, 1929. A case of yellow fever was reported in Monrovia, Liberia, on June 3, 1930.

X

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PSITTACOSIS OUTBREAK IN A DEPARTMENT STORE

By L. F. BADGER, *Passed Assistant Surgeon, United States Public Health Service*

Four cases of psittacosis, all employees of a department store employing 500 to 600 persons, were reported by 3 physicians, 1 physician reporting 2 cases. It was learned, on visiting these cases, that a number of other employees were ill at the same time with apparently similar symptoms. Most of these were employed on the floor on which parrots were kept.

THE PARROTS

During the latter part of November, 1929, 12 parrots were received from a New York importer. The parrots were in poor condition on arrival, and eight died while in the store. Of the four sold, one, which left the store the first part of January, died three days later, and two, which the purchaser claimed were sick, were returned.

The store building is L-shaped, and a section at the extreme end of one wing on the third floor was reserved for the birds. Besides the parrots, there were also about 40 pairs of parrakeets, of which 10 pair died, and 60 to 70 canaries, of which it was estimated that 5 to 10 died.

Method of handling the birds.—The canaries and the parrakeets were kept in cages. The parrots, during the day, were not kept in cages but on a perch outside and at night were replaced in the crate in which they had been shipped. The crate was kept on the floor not far from the perch. On one occasion the parrots escaped from the crate and were found wandering about the floor on Monday morning. It is understood that two dead parrots were picked up from the floor.

Symptoms in parrots.—The following are the symptoms in the sick parrots as observed by the employees: Refusal to eat; immobility on the perch; "seemed sleepy"; ruffled feathers; and diarrhea.

HUMAN CASES

The investigation of the human cases was hampered by the following circumstances: The management of the store for obvious reasons denied the existence of any unusual prevalence of illness among the employees and was not cooperative; no sick record of the employees was available; the employees were hesitant about giving information; and the physicians did not report to the health department the cases of influenza and pneumonia; and the majority of the cases were diagnosed as one or the other, or both.

It was possible, however, to obtain the names of 25 employees who were absent from work four weeks or longer. The onset of illness in each instance occurred between December 14 and January 13. Twenty-two of the twenty-five cases were among the 50 to 60 employees who worked on the third floor, and 18 of these were among the 20 to 30 who worked in the wing in which the birds were kept. Three worked on the second floor, but had visited the parrots.

Brief histories of 17 cases are reported here. It was impracticable to secure data on the remaining eight cases. The symptoms were approximately the same in all and were typical of psittacosis.

CASE HISTORIES

Case 1.—Patient took care of the birds in addition to other duties. He worked through Saturday, December 14, although he had not been feeling well for several days. During the evening of the 14th and the following day, the symptoms became aggravated and he consulted a physician, complaining of severe headache, chills, fever, loss of appetite, and slight general pains. Temperature between 102° and 103° F. Coarse moist râles throughout chest. A very severe myocarditis. A diagnosis of influenza was made. December 18 a marked congestion of the lungs was noted. Died December 19, on the eighth day of the disease. The death certificate showed influenza and myocarditis as the cause of death. This was probably a case of psittacosis. The case was cared for in the home; no clinical record was kept; no laboratory tests were made.

Case 2.—Reported by physician as psittacosis. Patient took care of birds, in addition to other duties. On December 23 he became suddenly ill. Onset with chills, fever, severe occipital headache, marked malaise, loss of appetite, tongue markedly coated, temperature 103° F. Early in the disease the pulse and respiratory rates were not rapid; but as the disease progressed, the pulse rate became 124. The respiratory rate remained slow. The chest examination revealed coarse râles throughout, but there were no definite findings of pneumonia at any time. The attending physician expected pneumonia to develop, but no definite signs were ever observed. Although the lung findings persisted, the cough remained slight, with practically no expectoration. The disease was marked by extreme and persistent delirium. The duration of the febrile period was 17 days. Treated in home. During acute illness no laboratory tests were made. Approximately one month after onset, Widal was negative. Agglutinations for *Bacillus abortus*, negative. Feces negative for typhoid group.

Case 3.—Patient fed the birds and cleaned the cages. Frequently handled and fondled the parrots. Became ill on December 20, complaining of severe occipital headache, malaise, fever, chills, and loss of appetite. On examination, the tem-

perature was 104° F., tongue coated, and coarse moist râles throughout the chest. In addition to the râles there were areas of atypical pneumonia. The course of the disease was marked by indefinite pneumonic findings, high fever with slow pulse and respiratory rates, an unproductive cough, epistaxis, constipation, and delirium.

Case 4.—Patient worked in close proximity to the parrots; frequently handled and fondled them. On December 24 became ill with severe headache, principally occipital; slight general pains, malaise, loss of appetite, chills and fever. In a day or two an unproductive cough appeared. There was diarrhea for two or three days, followed by constipation. A physician was called on January 5, the twelfth day of the disease, at which time the temperature was 104° F., pulse 100, tongue markedly coated, slight delirium, and throughout chest were found coarse moist râles. Although expected, there were no definite signs of pneumonia. Physicians statement: "Would be called broncho-pneumonia if anything." The temperature remained between 102° and 104° F., for 3 or 4 days, then around 101° for 8 days and gradually fell to normal on the twenty-eighth day. The pulse remained around 100, and the respirations around 24. No laboratory tests were made.

Case 5.—Patient worked in close proximity to the parrots. Denied ever handling the birds. On December 16 became ill, complaining of a severe headache, general malaise, slight pain in chest, chills, fever, loss of appetite, and a moderate diarrhea. A physician was called in the evening, at which time the temperature was 103° F. The tongue was markedly coated, coarse mucous râles throughout the chest, and a small area of consolidation later appeared over the right lobe. Before the area of consolidation appeared, the physician thought that he was dealing with a case of ordinary influenza, but became puzzled when the temperature remained high. When the consolidation appeared he was further puzzled, as the pulse rate remained between 80 and 100, the respiratory rate between 20 and 22, and the findings in the lungs were not typical of a frank lobar pneumonia. The total white blood cell count was at no time over 8,400. As the symptoms did not respond to the therapy employed, mercurochrome in 5-cubic-centimeter doses was given intravenously, one dose daily for three days, with no response. The temperature first reached normal again on the fourteenth day of the disease.

Case 6.—Patient worked in close proximity to the parrots. Had handled the birds. On December 24 he became suddenly ill, complaining of severe headache, chills, fever, malaise, loss of appetite, and slight general pains. First seen by a physician on fourth day of illness, at which time the temperature was 103° F., pulse rate 100 to 110, respiratory rate normal, tongue coated, slight unproductive cough, and constipation. There was a pronounced bronchitis. The physician stated that each morning he expected to find definite signs of pneumonia, but they never appeared. On the ninth day of the disease the temperature became normal and remained normal for one week, when a second febrile period occurred, lasting seven days. During the second febrile period the temperature again reached 103° F., and the symptoms, though less severe, were repeated. No laboratory tests were made.

Case 7.—Patient worked in close proximity to the parrots and frequently handled them. Became ill on December 20, complaining of severe headache, chills, fever, malaise, loss of appetite, constipation, and slight cough. Physician was called on the seventh day of illness. Temperature 102° F., pulse 84, respiratory rate normal, blood pressure 80/50. Examination of the chest revealed râles throughout the right chest and evidence suggestive of pneumonia over the base. The physician stated that the patient never seemed as ill as the chest findings indicated. With the findings in the chest the respiratory rate remained but slightly increased. The temperature during the second week was 102° F., or

under. The readings were always made in the morning. The pulse remained slow, between 66 and 90. The blood pressure gradually returned to normal. Three weeks after the onset the patient was up in a chair. The physician at first, although informed of the many cases of illness among the employees of the store and of the sick parrots, did not think that he was dealing with psittacosis; but later, after watching the course of the disease, was in doubt. No laboratory tests were made.

Case 8.—Patient worked in close proximity to the parrots; had been in direct contact with them. On December 24 became ill, complaining of severe headache, malaise, loss of appetite, chills and fever. Temperature 104° F. During the course of the disease there developed a slight unproductive cough. From the chest findings the physician thought that pneumonia would develop, but no definite findings were observed. The duration of the febrile period was two weeks.

Case 9.—Worked in close proximity to the parrots. Denies ever handling the birds. Became ill on January 13, at 2 p. m., and felt that he had a fever. Temperature taken by nurse, who found it to be normal. At 4.30 p. m., temperature was 102°. Soon complained of severe headache, malaise, slight general pains, and loss of appetite. On the following day patient was examined by a physician. Temperature was 104° F.; pulse rate, 100; respiratory rate, 20; tongue coated; coarse moist râles were heard throughout the chest, but no definite findings of pneumonia. At one time a small area of tubular breathing was heard over the left lobe. The physician expected definite signs of pneumonia to develop, but on the following day the tubular breathing was not heard. The temperature remained between 102° and 103° until the fifteenth day of the disease, when it became normal. The pulse throughout the disease remained between 100 and 110; the respirations 20 to 22. Psittacosis was considered but ruled out because of the lack of gastro-intestinal symptoms. The case was undoubtedly one of psittacosis. No laboratory tests were made.

Case 10.—Patient worked in close proximity to the parrots. Denied ever having handled the birds. On December 27 became ill, complaining of severe headache, marked malaise, loss of appetite, chills, fever, and slight general pains. On examination, temperature 102.5° F., pulse 80, tongue coated, constipation, and indefinite lung findings. The fever continued for four weeks; the pulse varied between 80 and 112. During the course of the disease there was a slight unproductive cough. Definite delirium at times. Total number of white cells 8,150, neutrophiles 69, eosinophiles 1, lymphocytes 23, and monocytes 7 per cent.

Case 11.—Patient had worked as floor boy on the floor on which the parrots were kept. History of possibility of direct contact undetermined. On January 6, patient became ill, complaining of severe headache, malaise, chills, fever, loss of appetite, some cough and constipation. After one week of illness, physicians were changed. The following information was received from the second physician: Temperature, 103° F.; pulse and respiratory rate not rapid; some delirium; coarse râles throughout the chest, and evidence of consolidation "in the middle of each lung." No abnormal heart findings. The temperature became normal on the fourteenth or fifteenth day of the disease. There had occurred, as complication, a phlebitis of the right femoral vein. After a two or three day period of normal temperature, the patient, while walking, suddenly died. Cause of death: Embolism. No laboratory tests were made.

Case 12.—Reported as psittacosis. Patient employed on the floor on which the parrots were kept. Denies any direct contact with the birds. Became suddenly ill on January 6, complaining of slight headache, malaise, severe chills, fever, and loss of appetite. Temperature 105° F., pulse rate around 100, respiratory rate normal, coarse râles heard throughout the chest with an area of con-

solidation in the lower right lobe. During the course of the disease the temperature varied between 104° and 105° F.; pulse rate 90 to 130, generally around 100; respiratory rate normal; marked coating of the tongue; constipation; epistaxis; no cough; slight delirium; urine and feces negative for the typhoid group.

Case 13.—Reported as psittacosis. Patient employed on the floor on which the parrots were kept. Had handled and petted the birds. On January 1, became ill, complaining of severe headache, malaise, chills, fever, slight general pain, and loss of appetite. First seen by a physician on third day of illness; temperature 103° F., pulse around 100, respiratory rate slightly increased, marked coating of the tongue, and coarse râles throughout the chest. During the course of the disease temperature varied between 102° and 104° F., for three weeks. On the twenty-first and twenty-second day the temperature was normal, followed by a 4-day febrile period, after which the temperature became and remained normal, the pulse remained around 100, the respiratory rate normal or but slightly increased, localized areas of atypical pneumonia in the lungs, persistent but slight unproductive cough, epistaxis, constipation, and rather marked delirium. Total white blood cells 4,900.

Case 14.—Patient employed on the floor on which the parrots were kept. Had handled dead and living parrots. On January 11 became ill, complaining of severe occipital headache, malaise, chills, fever, slight general pains, and loss of appetite; temperature 103.2° F., pulse 100, respiratory rate normal, slight unproductive cough, indefinite chest findings, marked coating of the tongue, and constipation. The temperature ranged around 102° to 103° for approximately 10 days, the pulse around 100 to 110, and the unproductive cough persisted. The febrile period was followed by an afebrile period lasting 10 days, when a second febrile period of two weeks' duration occurred. The symptoms were the same, but less severe, the temperature ranging between 100° and 101°. No laboratory tests were made.

Case 15.—Reported as psittacosis. Patient employed on another floor of the store, but had visited and handled the parrots. On December 24 became ill, complaining of severe headache, malaise, chills, fever, and loss of appetite; temperature 103° F., pulse 104, respiratory rate normal, tongue coated, diarrhea, slight unproductive cough, and pronounced bronchitis. During the course of the disease, highest temperature was 104° F., ranged from 102° to 103° for two weeks, reached normal on nineteenth day; pulse remained around 100, respiratory rate remained normal, slight unproductive cough persisted, and in addition to coarse râles throughout the chest there appeared indefinite areas of atypical pneumonia; there were slight delirium and diarrhea. No laboratory tests were made.

Case 16.—Patient employed on another floor, but had visited and handled the parrots. On January 13 patient became ill, complaining of severe headache, malaise, chills, fever, and loss of appetite. A physician was called on the third day; temperature 104° F., pulse rate 90, respirations but slightly increased, coarse moist râles throughout chest, and, although expected by the physician, definite consolidation did not occur. Temperature returned to normal on the sixteenth day. Pulse rate ranged between 90 and 110; on one day it reached 124. After three days of normal temperature, patient suddenly died while walking. For two to three days before death had complained of a pain in the right leg. At no time during the illness was any cardiac abnormality noted. Death was possibly due to embolism. No laboratory tests were made.

Case 17.—Patient was a visitor to the store; frequently visited and petted the parrots. The last contact with the birds was on December 23 or 24. On December 31 became ill, complaining of general malaise, severe occipital headache, chills, fever, and loss of appetite. Physician's examination on seventh day: Temperature 101.2° F., pulse rate 100, respiratory rate 20, slight unproductive cough,

coarse moist râles over left lung. During following week temperature reached 106° F., pulse rate from 100 to 124, generally 100 to 110, respiratory rate 20 to 24. At one time the physician observed findings suggestive of pneumonia in the left lung. This was not constant. Physician thought he was dealing with central pneumonia, although the diagnosis was not borne out by the pulse and respiratory rate. Marked delirium occurred. Died on the sixteenth day. No laboratory tests were made.

Summary of symptoms.—The following are the symptoms of these cases summarized: Rather sudden onset; chills; fever; malaise; severe headache, most frequently occipital; loss of appetite; coated tongue; constipation (occasionally diarrhea); unproductive cough; marked bronchitis with indefinite areas, suggesting pneumonia; fever reaching 103° or 104° F.; lack of definite gastrointestinal symptoms; lung pathology out of proportion to other findings; delirium varying in degree; leucocyte count normal or below.

Mode of contact.—Psittacosis may be contracted by both direct and indirect contact. The majority of cases have occurred as house infections in families having sick birds. Undoubted cases have, however, been contracted by indirect contact. Nine members of the personnel of the Hygienic Laboratory, in Washington, who had no direct contact with infected birds or material in any way, contracted psittacosis. From the manner in which the parrots were handled in the department store, there existed ample opportunity for both methods of infection. The birds were cared for by four of the employees, three of whom became ill. Other employees would frequently visit and handle the birds; particularly was this true during the noon hour. It was probably not rare for customers to come in direct contact with the birds. The opportunity for infection through indirect contact was also great, especially since the parrots were kept on a perch outside of any cage during the day and on one occasion had escaped from their cage and were free about the floor.

Four of the cases, on whom complete histories were obtained from their physicians, denied any direct contact, 12 admitted direct contact, and in 1, due to death, the mode of contact was undetermined.

SUMMARY AND DISCUSSION

Twenty-five employees were absent from work for periods of four weeks or longer. The onset of their illness occurred between December 14 and January 13. Histories typical of psittacosis were obtained on 17 of the 25. Parrots obtained from the same importer as were those of this study have caused cases of psittacosis in other sections of the country.

In addition to the parrots, some of the parrakeets might have been a factor in the spread of the disease. Approximately 24 parrakeets died, and numerous reported cases of psittacosis have been contracted from this bird.

There were probably many unknown cases occurring among the employees. It was not uncommon for employees from floors other than the one on which the birds were kept to visit and handle the parrots, yet but three cases in such employees are known. One case, terminating fatally, occurred in a nonemployee who had visited and fondled the parrots. There existed a possibility that other similar cases occurred.

A remarkably high morbidity rate occurred in the employees on the floor on which the birds were kept. The floor is L-shaped, and a section at the end of one wing was reserved for birds. In this wing from 20 to 30 persons were employed, among which 18 of the known 25 cases occurred.

THE NATIONAL INSTITUTE OF HEALTH

Successor to the Hygienic Laboratory

By the act of Congress approved May 26, 1930, entitled "An act to establish and operate a National Institute of Health, to create a system of fellowships in said institute, and to authorize the Government to accept donations for use in ascertaining the cause, prevention, and cure of disease affecting human beings, and for other purposes," the Hygienic Laboratory will hereafter be known as the National Institute of Health. This act is as follows:

[PUBLIC—No. 251—71ST CONGRESS]

[S. 1171]

An Act To establish and operate a National Institute of Health, to create a system of fellowships in said institute, and to authorize the Government to accept donations for use in ascertaining the cause, prevention, and cure of disease affecting human beings, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Hygienic Laboratory of the Public Health Service shall hereafter be known as the National Institute of Health, and all laws, authorizations, and appropriations pertaining to the Hygienic Laboratory shall hereafter be applicable for the operation and maintenance of the National Institute of Health. The Secretary of the Treasury is authorized to utilize the site now occupied by the Hygienic Laboratory and the land adjacent thereto owned by the Government and available for this purpose, or when funds are available therefor, to acquire sites by purchase, condemnation, or otherwise, in or near the District of Columbia, and to erect thereon and to furnish and equip suitable and adequate buildings for the use of such institute. In the administration and operation of this institute the Surgeon General shall select persons who show unusual aptitude in science. There is hereby authorized to be appropriated, out of any money in the Treasury not otherwise appropriated, the sum of \$750,000, or so much thereof as may be necessary for construction and equipment of

additional buildings at the present Hygienic Laboratory of the Public Health Service, Washington, District of Columbia.

SEC. 2. The Secretary of the Treasury is authorized to accept on behalf of the United States gifts made unconditionally by will or otherwise for study, investigation, and research in the fundamental problems of the diseases of man and matters pertaining thereto, and for the acquisition of grounds or for the erection, equipment, and maintenance of buildings and premises: *Provided*, That conditional gifts may be accepted if recommended by the Surgeon General and the National Advisory Health Council. Any such gifts shall be held in trusts and shall be invested by the Secretary of the Treasury in securities of the United States, and the principal or income thereof shall be expended by the Surgeon General, with the approval of the Secretary of the Treasury, for the purposes indicated in this act, subject to the same examination and audit as provided for appropriations made for the Public Health Service by Congress. Donations of \$500,000 or over in aid of research will be acknowledged permanently by the establishment within the institute of suitable memorials to the donors. The Surgeon General, with the approval of the Secretary of the Treasury, is authorized to establish and maintain fellowships in the National Institute of Health, from funds donated for that purpose.

SEC. 3. Individual scientists, other than commissioned officers of the Public Health Service, designated by the Surgeon General to receive fellowships may be appointed for duty in the National Institute of Health established by this act. During the period of such fellowship these appointees shall hold appointments under regulations promulgated by the Secretary of the Treasury and shall be subject to administrative regulations for the conduct of the Public Health Service. Scientists so selected may likewise be designated for the prosecution of investigations in other localities and institutions in this and other countries during the term of their fellowships.

SEC. 4. The Secretary of the Treasury, upon the recommendation of the Surgeon General, is authorized (1) to designate the titles and fix the compensation of the necessary scientific personnel under regulations approved by the President; (2) in accordance with the civil service laws to appoint, and in accordance with the classification act of 1923, and amendments thereto, fix the compensation of such clerical and other assistants; and (3) to make such expenditures (including expenditures for personal services and rent at the seat of government, for books of reference, periodicals, and exhibits, and for printing and binding) as he deems necessary for the proper administration of such institution.

SEC. 5. The facilities of the institute shall from time to time be made available to bona fide health authorities of States, counties, or municipalities for purposes of instruction and investigation.

SEC. 6. That hereafter the Director of the National Institute of Health while so serving shall have the rank and shall receive the pay and allowances of a medical director of the Public Health Service.

Approved, May 26, 1930.

The general purposes of the act are to provide larger facilities for investigations of diseases of man and matters pertaining to the public health, to encourage research and the training of individuals engaged

therein, to enable the Government to accept bequests in aid thereof, and to bring about cooperation with scientific institutions in the prosecution of research work.

Scientific research is the most important function of the Federal Government as relates to public health. While steady progress has been made in this field, the problems presented are becoming increasingly complex. There is necessity, therefore, that larger facilities should be provided, that means be adopted whereby the services of trained scientists can be utilized, and cooperation on the part of the Public Health Service with scientific institutions can be encouraged.

Public health investigations by the Public Health Service were first authorized in 1901. Since then substantial progress has been made and many new facts have been discovered which have had an important bearing on the prevention and control of disease. The necessity for this work far outstripped the facilities for its conduct. Under the above-mentioned authority, these facilities may be greatly enlarged.

In its development the new institute will have the advantage of the traditions of the Hygienic Laboratory. In reality the Hygienic Laboratory becomes the National Institute of Health, which, with enlarged facilities, will be devoted to investigations of the underlying problems not only of communicable diseases but of degenerative diseases and environmental conditions affecting health.

In aid of this work the Secretary of the Treasury may hereafter accept gifts to be held in trust and used for the purposes mentioned; the expenditures to be safeguarded in all respects as are other governmental funds. These gifts may also be used for the establishment of fellowships to encourage individual scientists. Appointments and services under these fellowships will be governed by laws and regulations affecting the United States Public Health Service. Individual ability is the most valuable asset of a people of a country. The object is to encourage postgraduates of extraordinary ability and to aid them to follow permanently their scientific bent in the interests of humanity.

In order that those who make gifts may have a living part in the development of the institute, provision is made whereby donations of \$500,000 or over will be acknowledged permanently by the establishment within the institute of suitable memorials.

During consideration of the measure before the Senate, July 2, 1926, Senator Joseph E. Ransdell, its author, stated in part as follows: ¹

"The Government should lead in efforts of health, and should secure active, close cooperation of all health agencies in the Union, public and private, so as to get the full benefit that comes from united effort. It should show no rivalry or jealousy toward private endowments, foundations, institutions, schools, municipal, and State health departments, but merely a friendly leadership in a concentrated effort to

¹ Congressional Record, May 21, 1930, pp. 9633 et seq.

conquer disease and relieve human suffering, to prolong the term of life, and make our sojourn on earth more pleasant and free from pain. This institution should be an international clearing house for health. It should keep in close touch with every agency that is trying to conquer disease, not only in the United States but throughout the entire world.

"A vast amount of research work is awaiting the attention of scientists in the field of medicine and its application for the alleviation of suffering. It is through the joint intensive efforts of chemist, physicist, physiologist, pharmacologist, pathologist, immunologist, and physician that remedies must come for the above-named ailments and others to which the human race is susceptible."

"A great medico-chemical research laboratory, fully equipped to cope with all diseases that afflict mankind, where he can carry on his important work fruitfully and in an unlimited way, is the need of the American scientist.

"Progress in future may be expected to depend on the advancement of scientists, and that country will be most benefited whose citizens are encouraged to engage in systematic research and aided in doing so.

"With moderate amounts of funds and good standing from a scientific standpoint, the health agency of the Federal Government may outline the future public health field, may encourage coordination of effort and may aid in actual investigations of problems and associate other official and unofficial agencies in these investigations.

"The system of maintenance of research by means of appropriations should be continued. In future, the effort should be to utilize these appropriations not only for the conduct of investigations but the coordination of scientific effort and the maintenance of advisory and supervisory agents in the interest of science.

"Philanthropists may well be encouraged to establish endowments for the conduct of research and above all for the training and employment of scientists. They may be encouraged also to make donations for the use of the Federal Government in the promotion of scientific effort.

"I can not suggest anything * * * that will do as much good to humanity as to contribute generously to their Federal Government for public health purposes in combating disease."

RESULTS OF THE OPERATION OF THE STANDARD MILK ORDINANCE IN MISSISSIPPI¹

By A. W. FUCHS, *Sanitary Engineer, United States Public Health Service*, and H. A. KROEZE, *Director, Bureau of Sanitary Engineering, Mississippi State Board of Health*

Since 1923 the United States Public Health Service has encouraged the adoption of a uniform, effective milk-sanitation program in the cities and States of the United States. This program had its birth in Alabama, in that year, when the Alabama State Board of Health

¹ Read before the Annual Conference of Health Officers of Mississippi at Jackson, Miss., Dec. 12, 1929.

called upon the Public Health Service to formulate for it and assist it in beginning the execution of a state-wide plan of milk control.² The plan developed by the Public Health Service was so successful in improving the quality and increasing the consumption of milk in Alabama cities³ that near-by States, one after another, adopted the plan and called upon the Public Health Service for advice and assistance, until now some 20 States have adopted the program and over 300 cities are controlling their milk supplies under the standard milk ordinance.

The rapid spread of the standard milk ordinance may be explained by the previous unsatisfactory status of milk control. The chaotic state of milk control was permitting the occurrence of milk-borne outbreaks of communicable disease. The nonuniformity of requirements caused the dairy industry to discredit the health officer's knowledge of milk sanitation. The conflicting methods of milk control were partly responsible for inadequate milk consumption. Finally, many States realized the need for a uniform, effective milk-control program.

The provisions and operation of the standard milk ordinance will not be explained in detail, since this has been adequately covered in a previous publication.⁴ Suffice it to state that the ordinance requires that milk be periodically graded (the grades to be based on inspections and analyses) and that all bottles and cans be labeled with the grade awarded by the health officer, and leaves to each community the decision as to which grades shall be permitted to be sold.

To promote uniform interpretation and enforcement, the Public Health Service found it advisable in 1926 to prepare what has become known as the Standard Milk Control Code. This code takes up the ordinance item by item, gives in detail what is recommended as satisfactory compliance, and outlines the public health reason for each item. All the national dairy and public health organizations have been invited to discuss it and to suggest modifications.

On July 18, 1927, the Mississippi State Board of Health adopted the standard milk ordinance as State Regulations Governing the Production and Sale of Milk and Certain Milk Products, superseding the regulations adopted in 1925, and recommended them to the municipalities of Mississippi for adoption. In cooperation with the Public Health Service, the bureau of engineering of the State board of health made preliminary surveys of the milk supplies of a number of cities and urged the adoption of the standard milk ordinance.

¹ A State-wide Milk Sanitation Program. Pub. Health Rep., Nov. 7, 1924. Reprint No. 971.

² Standard Milk Ordinance Results In Fourteen Alabama Towns. Pub. Health Rep., Mar. 11, 1927. Reprint No. 1144.

⁴ A National Program for the Unification of Milk Control. Pub. Health Rep., July 30, 1928. Reprint No. 1098.

By the end of 1927, 11 cities had either passed the ordinance directly or had obtained it automatically through the adoption of the State sanitary code. In 1928 the number increased to 19. At present 26 cities in Mississippi have the standard milk ordinance.⁵ Prior to the inauguration of this program only six cities in the State were doing any milk-control work worthy of the name.

The list of standard ordinance cities contains communities ranging in population from less than 2,000 to over 40,000, and includes practically all cities in the State having a population of 10,000 or more.⁶ The standard ordinance now affords satisfactory control of milk to an aggregate population comprising over three-fourths of the total urban population of the State (i. e., cities over 2,500). Practically all cities operating under the standard milk ordinance are located in counties having full-time health units. As the remaining counties provide for full-time health service, it will become possible to enlarge the list of standard ordinance cities.

All but three of the standard ordinance cities have publicly announced milk grades from one to seven times. While the ordinance requires grading at least every six months, most of the cities consider it advisable to announce grades more frequently, some aiming at quarterly gradings. The average interval for the total of 80 grade announcements made in the 23 cities that have graded to date has been 124 days, or about 4 months. The sale of all grades of milk is permitted except in Biloxi, where the sale of grade D is proscribed.

Whatever success has attended the milk control program has been due largely to the interest and attention devoted to it by the local health departments. Without the valuable coordination, training, and advice rendered by the State board of health representatives, however, uniformity of methods would have been impossible of attainment. The Public Health Service representative in the State has made ratings of the milk sanitation and of the degree of enforcement in the cities, both before the ordinance became operative and at least every five months since. These ratings afford an accurate measure of the improvements effected under the standard milk ordinance.

The improvements in milk quality achieved in the 24 Mississippi cities which had adopted the ordinance prior to July, 1929, have been charted from data furnished by the Public Health Service ratings.

Chart 1 is a composite picture of the preenforcement conditions as compared with recent conditions (i. e., during the last half of 1929) surrounding the production, handling, and sale of retail raw milk. Each bar represents the percentage of the total volume of retail raw milk complying with that particular item of the requirements for

⁵ Since this paper was read the number of cities has increased to 29.

⁶ All cities of 10,000 or more now included.

grade A raw milk as given in the Standard Milk Control Code. Chart 1 reveals the general improvement in retail raw milk supplies of the 24 cities. The weighted average retail raw milk sanitation rating of these supplies prior to enforcement of the ordinance was 46.4; the recent rating was 88.2, an improvement of 91 per cent. These

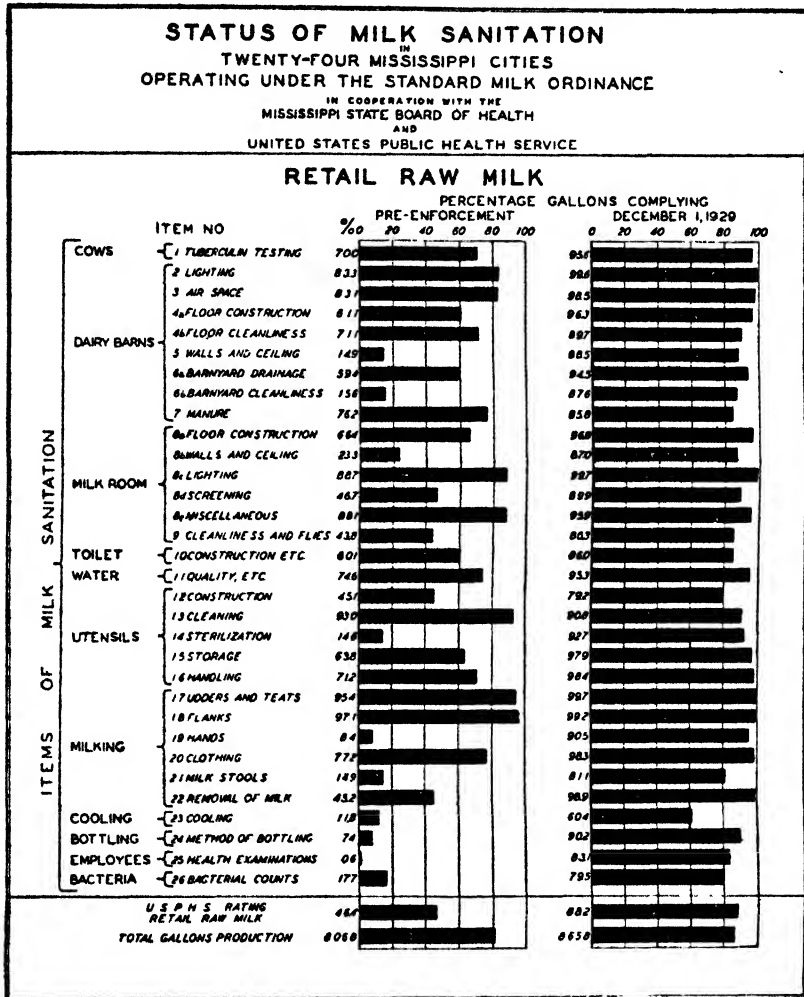


CHART 1

weighted averages are computed⁷ by weighting each item according to its importance, multiplying this figure by the per cent of the total number of gallons complying with the item, thus obtaining the credit, and adding the credits for all the items, on a basis of 100. Prior to enforcement, only 7 of the 32 items had a rating of 80 or more; the

⁷ See Reprint No. 1098.

recent ratings show 29 items rating over 80 per cent compliance, and only 3 under that figure. It is only fair to state that the preenforcement ratings of cooling and bacterial count are not reliable, as data were available for only a few cities.

The three items rating less than 80 per cent compliance on recent ratings are (12) "Construction of utensils," (23) "Temperature on delivery," and (26) "Bacterial counts." Item 12 rates low because many milk pails originally in good condition have, after a year or more of use, acquired open seams which have not been properly resoldered so as to be easily cleanable. The low ratings on temperature and bacterial count are due partly to a certain percentage of milk of lower grade than A, and partly to the method of calculating ratings whereby no credit was given if any dairyman's supply averaged a temperature of over 50° F. or a bacterial count of over 50,000 per cubic centimeter for the grading period, or if less than 4 samples were taken.

Table showing United States Public Health Service sanitation and enforcement ratings, December 31, 1929

(Mississippi State Board of Health, Bureau of Sanitary Engineering)

City ¹	Rating of retail raw milk					Rating of raw milk sold to plant				
	Preliminary	First	Second	Third	Fourth	Preliminary	First	Second	Third	Fourth
	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent
Belzoni.....	25	77	39					87		
Biloxi.....	31					31				
Brookhaven.....	48	88								
Clarksdale.....	34	86	91	90		36	37	39	36	
Cleveland.....	53	94	94							
Columbus.....	54	88	81	84		42	85	83	87	
Durant.....	29	77								
Greenville.....	53	89	90	98				90	90	
Greenwood.....	50	74	87	85	87		65	80	80	
Hattiesburg.....	32	89	88	94	90				82	82
Indianola.....	28	85	76	92	92				83	87
Jackson.....	68	87	89	91		60	83	91	90	
Laurel.....	77	93	95	92						
Leland.....	29	84	84	94						
Lexington.....	16	90								
Meridian.....	33	85	89	88	87	22	72	75	70	65
Natchez.....	41	84								
New Albany.....	25	84	93							
Ocean Springs.....	39									
Picayune.....	37	81	86							
Poplarville.....	41	73	80							
Rosedale.....	37	94	69							
Shelby.....	44	49	45			45	69	81		
Tupelo.....	51	84	91	86	83					
Vicksburg.....	47	80	92	94			89	96	90	
Yazoo City.....	51	85	94	92						

¹ Pascagoula, Moss Point, and Gulfport have adopted the ordinance since this list was prepared.

Table showing United States Public Health Service sanitation and enforcement ratings, December 31, 1929—Continued

City ¹	Rating of pasteurization plants					Rating of enforcement methods			
	Preliminary	First	Second	Third	Fourth	First	Second	Third	Fourth
	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent
Belzoni.....			87			29			
Biloxi.....	56								
Brookhaven.....						90			
Clarksdale.....	27	66	100	84			91	80	
Cleveland.....						77	90		
Columbus.....	63	71	80	98		66	70	73	
Durant.....						84			
Greenville.....			84	92			78	76	
Greenwood.....		76	60	50		93	88	76	88
Hattiesburg.....				61	70		77	80	79
Indianola.....				68	72		69	71	78
Jackson.....	34	81	85	100			80	86	
Laurel.....							77	82	
Leland.....							71	88	
Lexington.....						87			
Meridian.....	25	74	55	79	83		74	64	66
Natchez.....						78			
New Albany.....						86	89		
Ocean Springs.....									
Picayune.....						74	72		
Poplarville.....						74	78		
Rosedale.....						74	88		
Shelby.....	37	73	59			77	81		
Tupelo.....							73	78	81
Vicksburg.....		68	84	80			82	83	
Yazoo City.....							83	91	

¹ Pascagoula, Moss Point, and Gulfport have adopted the ordinance since this list was prepared.

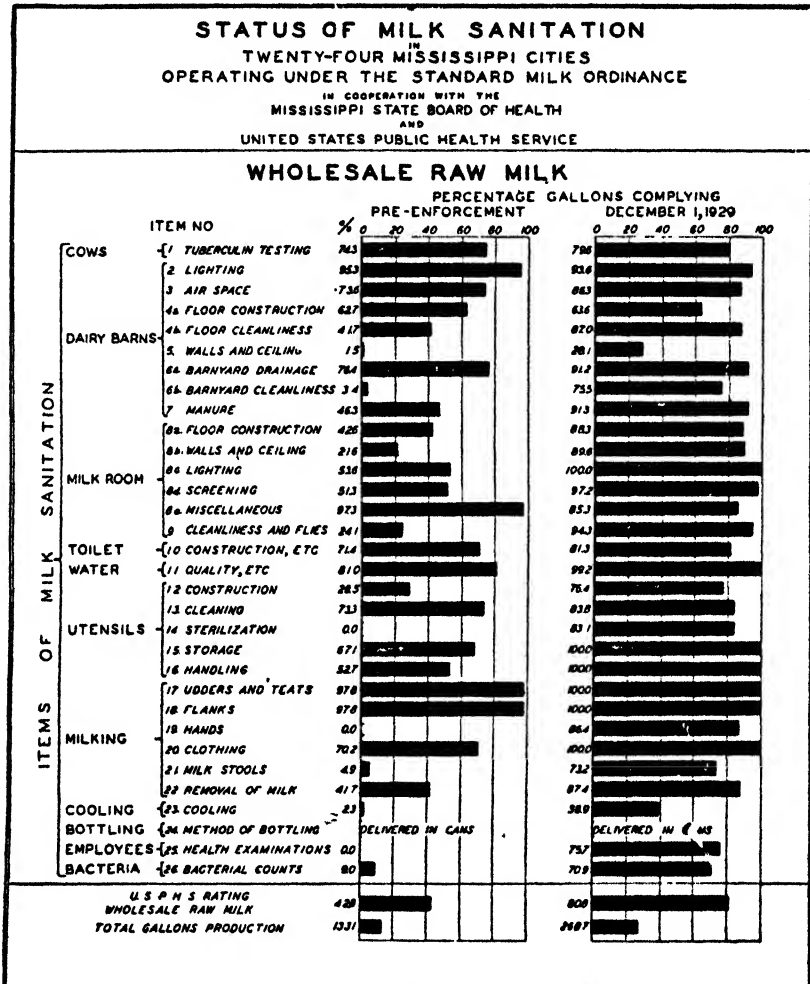
The accompanying table shows all the ratings that have been made to date for each standard ordinance city in the State. The first section shows the ratings of retail raw milk, the second the ratings of raw milk sold to plants, the third the ratings of pasteurization plants, and the fourth shows the ratings of enforcement methods. It will be noted that only 7 cities had a preenforcement retail raw milk rating of over 50 per cent, while in the latest ratings only 5 of the 24 cities fall under 80 per cent.

Pasteurized milk is now available in 10 of the 24 cities included in the ratings. Chart 2 indicates the improvement effected in the quality of the milk delivered to the pasteurization plants. The preenforcement figures apply to only five cities. In the other five no pasteurized milk was sold at the time when the standard ordinance was enacted. It is seen that there has been a tremendous improvement in most of the items as compared with former conditions. The weighted average sanitation rating of raw milk sold to plants prior to enforcement of the ordinance was 42.8; the recent rating was 80.9, or an improvement of 89 per cent. It is significant, in comparing Charts 1 and 2, to observe that, except for a few items, the conditions surrounding the production of milk for pasteurization are almost as good as those under which the retail raw milk is produced.

Referring again to the table showing ratings for the individual cities, it is noted that on raw milk sold to plants only one city had a

rating of over 50 prior to enforcement of the standard ordinance, whereas the last ratings made show only two cities under 80.

Chart 3 indicates the improvement effected in the pasteurization plants under the standard ordinance. Before enforcement, only nine of the 31 items were rated 80 or better, while recent surveys



show only three items with a rating under 80. To put it differently, the status of pasteurization plants has changed from a weighted average rating of 43.6 before enforcement to a rating of 91.1 at the present, or an improvement of 109 per cent. This must be considered a remarkable change.

The ratings of item 16(d) were made in accordance with the old code, which permitted a foam area up to 10 per cent of the entire

surface without requiring the heating of the air. None of the vats in the Mississippi Standard Ordinance cities is equipped with any air-heating device. Even if the foam-heating requirement of the latest code were applied, probably not over 10 per cent of the pasteurized milk in these cities would be found to be violating this item.

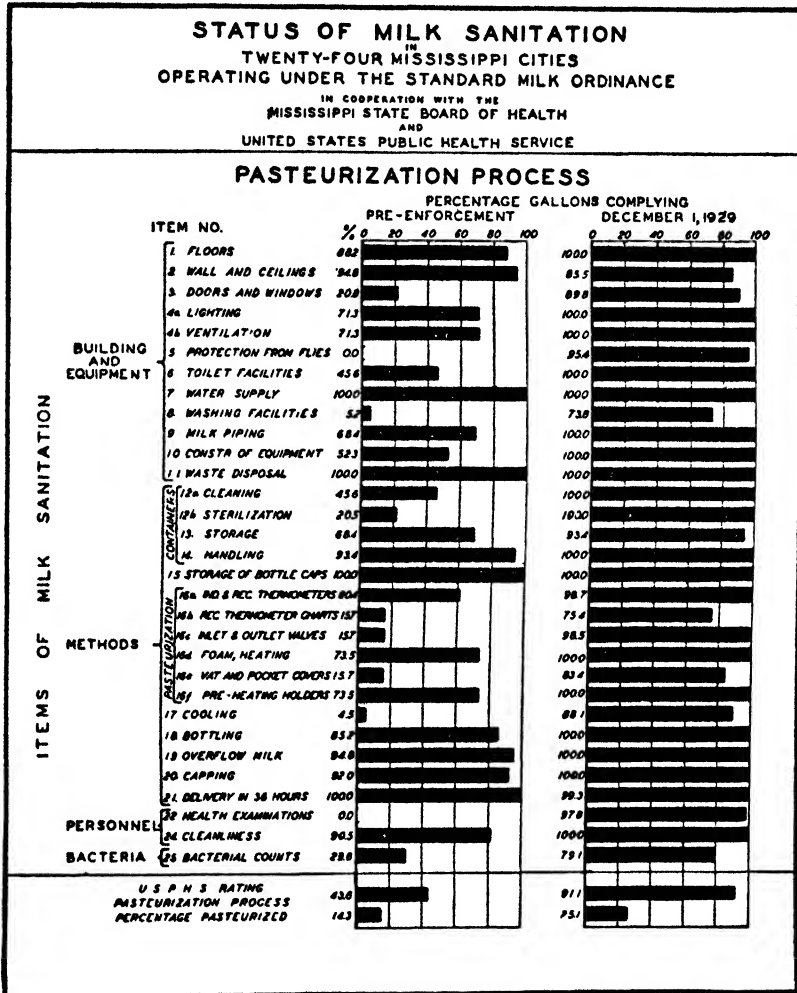


CHART 3

The table containing the rating of pasteurization plants for the several cities shows only two cities with a preenforcement rating over 50, while the last rating made on each city shows only three having a rating below 80.

With reference to the last section of the table showing ratings of enforcement methods for each city, it is noted that while most of the

latest ratings indicate a satisfactory enforcement of the ordinance, it is evident that a few health departments have manifested only a half-hearted interest in the subject of adequate enforcement of the provisions of the ordinance.

Improvement in the quality of market milk is only one of the two main objectives of the standard milk ordinance. The other objective, also of great public health importance, is to increase the consumption of milk. As nearly half of the standard ordinance cities in the State have graded their milk for less than a year, it is perhaps too soon to expect any great improvement in consumption. However, our figures show a total pre-enforcement consumption of market milk, in the 24 cities that have graded their milk, of 9,410 gallons, as compared with a recent total of 11,566 gallons, or an increase of 23 per cent. The most encouraging feature, moreover, has been the increase in pasteurized milk. While the consumption of retail raw milk increased only 7 per cent, that of pasteurized milk rose 117 per cent. Before enforcement pasteurized milk comprised 13 per cent of the total, while at present it is over 25 per cent of the total. This remarkable result has been obtained without any particular effort on the part of the State board of health to promote the use of pasteurized milk, and in the face of opposition to pasteurization which is characteristic of small towns.

Regarding consumption in the individual cities, there has been an increase in all but five. In these five the consumption has fallen off slightly, in no case over 10 per cent, and these are, for the most part, cities in which the ordinance has not long been in operation.

A matter of some concern to health officials of Mississippi is the low per capita consumption, even after the improvement that has taken place. Based on an estimated total population for the 24 cities of 246,000, the per capita consumption of market milk is only 0.38 pint per day. The larger cities of the State have, as a rule, a higher per capita consumption than this, while the smaller cities, particularly those in the Delta, are lower than the average. In smaller towns we usually find a greater proportion of family cows, the milk from which is not, of course, included in the market milk figures.⁸

To summarize, the results so far obtained in Mississippi after but two years' experience with the standard milk ordinance are as follows:

There are now 26⁹ cities, containing over 75 per cent of the State's urban population, enjoying a high-grade protection of their milk supplies, as against 6 cities formerly. The improvement in sanitary quality has been quite satisfactory; the retail raw milk has improved 91 per cent, the raw milk delivered to pasteurization plants 89 per

⁸ See Milk Consumption in Eighteen Small Alabama Communities, by Leach and Frank. Reprint 1255 from the Public Health Reports. This study shows an average consumption of 0.65 pint per capita per day (including family cow milk), and is probably representative of small southern towns.

⁹ By Feb. 15, 1930, the number had increased to 29.

cent, and the pasteurization plants 109 per cent. Milk consumption has increased 23 per cent. The number of cities having pasteurized milk has doubled, and the consumption of pasteurized milk has risen 117 per cent. With longer experience, stricter enforcement, and the adoption of the ordinance by more cities, we may look forward in the next few years to an excellent milk supply for all of Mississippi.

CURRENT PREVALENCE OF COMMUNICABLE DISEASES IN THE UNITED STATES ¹

April 27—May 24, 1930

The prevalence of certain important communicable diseases as indicated by weekly telegraphic reports from State health departments ² to the Public Health Service is summarized below. This summary is prepared from the data published in the PUBLIC HEALTH REPORTS under the section entitled "Prevalence of Disease."

Smallpox.—The incidence of smallpox during the current 4-week period continued to be high in relation to the experience of recent years, but was slightly more favorable than that indicated in the preceding report. Reported cases numbered 4,442, as compared with 3,295 for the corresponding period last year. The current incidence continues to be the highest for the last five years. The normal seasonal decline is now under way, however, and the current incidence represents a decline of about 15 per cent from the 5,208 cases reported during the preceding 4-week period of this year.

Poliomyelitis.—Ninety-seven cases were reported for the period under consideration, as compared with 73 for the corresponding four weeks of last year, and with 56 cases for the preceding period of this year. In California the number of cases increased in successive 4-week periods from 12 to 40, representing an increase considerably greater than the normal seasonal rise.

Meningococcus meningitis.—This disease was, during the period of this report, still in an epidemic stage, but the decline in epidemic intensity has continued, to which attention was called in the last report. Reported cases numbered 666, as compared with 1,054 for the corresponding period last year and with 1,011 this year. There is evidence that the epidemic has passed its crest in all regions except the Southern group of States.

Measles.—The incidence of measles was at its seasonal peak during the period of this report, 70,618 cases being reported, as compared with 52,725 for the period of last year and 67,530 for the preceding 4-week period of 1930.

¹ From the Office of Statistical Investigations, U. S. Public Health Service.

² The numbers of States reporting for the various diseases are as follows. Typhoid fever, 41; poliomyelitis 43; meningococcus meningitis, 42; smallpox, 42; measles, 38; diphtheria, 42; scarlet fever, 41; influenza, 31.

Typhoid fever.—The incidence of typhoid fever continues at its record low level. The reported cases numbered 719, as compared with 933 for the corresponding period of last year.

Scarlet fever.—The incidence of 13,651 reported cases of scarlet fever represents a low level for this period during the past five years. Last year 16,625 cases were reported during the corresponding period.

Diphtheria.—Diphtheria continues its gratifying decline. The current incidence represents the lowest on record for this season. There were 3,696 cases reported, as compared with 5,511 for the period last year.

Influenza.—Influenza incidence also represents the low point for the period during the past five years. Reported cases numbered 1,133, as against 1,433 for last year and 2,545 for the preceding period of this year.

Mortality, all causes.—According to the Weekly Health Index of the Bureau of the Census, the mortality from all causes averaged 13.0 per thousand population (annual basis), as compared with 12.9 for the same period last year.

COURT DECISION RELATING TO PUBLIC HEALTH

Law relating to collection and disposal of garbage construed.—(Indiana Supreme Court; Jansen Farms, Inc., v. City of Indianapolis (Sanitary District), 171 N. E. 199; decided Apr. 22, 1930.) A statute provided:

It shall be the duty of each such department of sanitation to haul away and to dispose of all garbage; that is to say, kitchen refuse from cooking food, found in its sanitary district, from private kitchens and the kitchens of all other establishments and institutions, and no other person may lawfully haul away from the place of its production any such garbage produced or found in any such sanitary district, and any other person convicted of such hauling shall be fined for each offense in a sum not greater than \$25.

A corporation purchased from a hotel and certain restaurants all of the food materials left from the tables and from the preparation of food for the tables. These food materials were removed in a sanitary manner from the hotel and restaurants by the corporation and taken outside the city and fed to hogs. The city of Indianapolis (sanitary district) sought permanently to enjoin the corporation from removing and disposing of the food materials mentioned.

The trial court's judgment was in favor of the city, but the supreme court reversed such judgment. The appellate court said that the law rather narrowly defined garbage to be "kitchen refuse from cooking food," and that such definition could not be extended. The court held that the food materials purchased and removed by the corporation were not garbage within the terms of the statute.

DEATHS DURING WEEK ENDED JUNE 7, 1930

Summary of information received by telegraph from industrial insurance companies for the week ended June 7, 1930, and corresponding week of 1929. (From the Weekly Health Index, June 11, 1930, issued by the Bureau of the Census, Department of Commerce)

	Week ended June 7, 1930	Corresponding week, 1929
Policies in force.....	75, 759, 190	74, 308, 445
Number of death claims.....	13, 685	14, 333
Death claims per 1,000 policies in force, annual rate.....	9. 4	10. 1

Deaths from all causes in certain large cities of the United States during the week ended June 7, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index, June 11, 1930, issued by the Bureau of the Census, Department of Commerce)

City	Week ended June 7, 1930		Annual death rate per 1,000, corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended June 7, 1930 *
	Total deaths	Death rate ¹		Week ended June 7, 1930	Corresponding week, 1929	
Total (64 cities).....	7,354	13 0	12 1	650	658	158
Akron.....	41			4	5	37
Albany.....	38	16.5	14 3	2	3	44
Atlanta.....	107	21.9	15 7	19	10	201
White.....	53			9	4	286
Colored.....	54	(²)	(³)	10	6	159
Baltimore.....	222	13 9	11.1	17	20	58
White.....	169			14	15	60
Colored.....	53	(²)	(³)	3	5	49
Birmingham.....	68	15.9	17 6	7	11	65
White.....	34			2	3	31
Colored.....	34	(²)	(³)	5	8	118
Boston.....	200	13.0	13 9	24	27	68
Bridgeport.....	22			1	4	17
Buffalo.....	154	14.4	14.4	11	21	49
Cambridge.....	31	12.8	12 0	3	2	56
Camden.....	37	14.2	12.7	1	6	18
Canton.....	31	13.8	5.8	6	3	149
Chicago.....	724	12.0	12.5	44	83	39
Cincinnati.....	168			16	6	95
Cleveland.....	220	11.4	11.5	16	16	49
Columbus.....	87	15.2	10.8	7	7	68
Dallas.....	56	13.4	11.7	2	0	
White.....	39			1	0	
Colored.....	17	(²)	(³)	1	0	
Dayton.....	58	16.4	12 7	6	3	89
Denver.....	82	14.5	10.8	11	3	115
Des Moines.....	38	13.0	12.4	5	8	87
Detroit.....	320	12.1	12.7	45	46	70
Duluth.....	27	12.1	5.8	1	0	27
El Paso.....	35	15.5	12.8	6	3	
Erie.....	29			0	2	0
Fall River.....	24	9.3	10.1	4	4	92
Flint.....	40	14.0	9.8	7	5	82
Fort Worth.....	40	12.2	9.2	6	6	
White.....	26			2	4	
Colored.....	14	(²)	(³)	4	2	
Grand Rapids.....	39	12.4	11.4	4	2	61
Houston.....	55			3	12	
White.....	45			1	8	
Colored.....	10	(²)	(³)	2	4	
Indianapolis.....	108	14.7	12.7	8	5	60
White.....	82			4	5	35
Colored.....	26	(²)	(³)	4	0	215
Jersey City.....	69	11.1	11.6	9	5	78

¹ Annual rate per 1,000 population.

² Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.

³ Data for 72 cities.

⁴ Deaths for week ended Friday.

* In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 26; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

Deaths from all causes in certain large cities of the United States during the week ended June 7, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index, June 11, 1930, issued by the Bureau of the Census, Department of Commerce)—Continued

City	Week ended June 7, 1930		Annual death rate per 1,000, corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended June 7, 1930
	Total deaths	Death rate		Week ended June 7, 1930	Corresponding week, 1929	
Kansas City, Kans.	22	9.7	10.6	1	2	34
White	15			0	1	0
Colored	7	(¹)	(¹)	1	1	217
Kansas City, Mo.	94	12.5	12.0	10	7	78
Knoxville	26	12.4	11.4	5	8	117
White	20			5	1	130
Colored	5	(¹)	(¹)	0	2	0
Los Angeles	329			28	22	85
Louisville	96	15.2	9.5	6	2	52
White	69			6	2	59
Colored	27	(¹)	(¹)	0	0	0
Lowell	41			7	4	166
Lynn	24	11.9	8.4	6	2	152
Memphis	82	22.5	16.2	6	3	71
White	38			3	2	55
Colored	44	(¹)	(¹)	3	1	101
Milwaukee	108	10.3	10.2	18	11	91
Minneapolis	93	10.6	9.3	2	4	13
Nashville	54	20.2	14.6	6	8	93
White	28			3	4	62
Colored	26	(¹)	(¹)	3	4	190
New Bedford	35			1	8	26
New Haven	31	8.6	9.7	0	4	0
New Orleans	163	19.8	14.3	14	17	81
White	92			8	7	71
Colored	71	(¹)	(¹)	6	10	101
New York	1,481	12.8	12.2	118	130	50
Bronx borough	189	10.9	11.3	10	17	23
Brooklyn borough	474	10.7	10.2	48	46	61
Manhattan borough	601	17.9	16.6	51	56	84
Queens borough	132	9.3	9.5	6	7	17
Richmond borough	65	19.0	12.1	3	4	56
Newark, N. J.	105	11.6	10.0	11	7	58
Oakland	53	10.1	10.3	2	2	24
Oklahoma City	59			12	7	236
Omaha	54	12.6	8.4	4	3	45
Paterson	32	11.5	17.3	2	3	35
Philadelphia	410	10.5	12.0	30	38	44
Pittsburgh	175	13.5	12.7	16	17	59
Portland, Oreg.	82			3	4	37
Providence	54	9.8	12.2	8	7	73
Richmond	70	13.4	11.3	8	7	119
White	35			6	1	135
Colored	15	(¹)	(¹)	2	6	87
Rochester	90	14.3	10.0	6	9	53
St. Louis	220	14.1	11.7	10	3	32
St. Paul	52			4	1	41
Salt Lake City ⁴	39	14.7	15.5	2	4	31
San Antonio	97	23.2	14.6	26	12	
San Diego	38			2	0	42
San Francisco	163	14.5	15.6	5	5	34
Schenectady	17	9.5	7.3	1	2	31
Seattle	76	10.3	9.0	4	0	40
Somerville	17	8.6	7.6	0	1	0
Spokane	30	14.3	13.9	3	3	78
Springfield, Mass.	41	14.3	10.1	5	5	79
Syracuse	57	14.9	15.4	5	3	62
Tacoma	21	9.9	13.7	0	0	0
Toledo	77	12.8	13.0	9	11	82
Trenton	65	24.4	15.4	6	2	112
Utica	22	11.0	11.5	0	2	0
Washington, D. C.	151	14.3	10.9	12	12	70
White	100			6	4	52
Colored	51	(¹)	(¹)	6	8	106
Waterbury	22			4	1	102
Wilmington, Del.	35	14.2	7.3	4	1	90
Worcester	45	11.9	11.6	6	8	78
Yonkers	15	6.4	10.7	2	4	48

⁴ Deaths for week ended Friday.

¹ In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended June 7, 1930, and June 8, 1929

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended June 7, 1930, and June 8, 1929

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended June 7, 1930	Week ended June 8, 1929	Week ended June 7, 1930	Week ended June 8, 1929	Week ended June 7, 1930	Week ended June 8, 1929	Week ended June 7, 1930	Week ended June 8, 1929
New England States:								
Maine.....	7	—	—	5	69	61	2	0
New Hampshire.....	—	5	—	—	50	73	1	0
Vermont.....	—	—	—	—	44	—	0	0
Massachusetts.....	61	59	3	4	1,335	625	2	3
Rhode Island.....	6	9	—	—	38	68	0	0
Connecticut.....	14	24	8	5	30	197	0	1
Middle Atlantic States:								
New York.....	118	256	18	112	2,574	1,048	8	12
New Jersey.....	137	99	6	3	1,596	282	6	6
Pennsylvania.....	72	101	—	—	776	1,230	9	21
East North Central States:								
Ohio.....	33	22	3	12	337	1,182	3	6
Indiana.....	15	12	—	—	144	466	3	2
Illinois.....	171	147	61	11	629	2,002	7	22
Michigan.....	61	91	—	4	1,347	929	26	93
Wisconsin.....	17	27	2	12	644	1,203	3	4
West North Central States:								
Minnesota.....	6	17	—	1	144	444	0	1
Iowa.....	6	4	—	—	166	62	0	0
Missouri.....	24	42	—	—	69	139	6	17
North Dakota.....	3	14	—	—	19	86	0	4
South Dakota.....	2	—	—	1	62	45	0	0
Nebraska.....	3	10	—	—	125	306	0	0
Kansas.....	10	6	—	1	318	628	1	0
South Atlantic States:								
Delaware.....	1	1	1	—	3	6	0	0
Maryland.....	15	20	5	12	44	43	1	2
District of Columbia.....	12	12	2	—	79	27	0	0
West Virginia.....	6	6	1	17	59	192	1	1
North Carolina.....	11	12	2	—	54	14	1	2
South Carolina.....	6	7	114	176	—	7	1	0
Georgia.....	2	3	13	6	184	30	2	1
Florida.....	4	8	—	3	60	61	0	0

¹ New York City only.

¹ Week ended Friday.

*Cases of certain communicable diseases reported by telegraph by State health officers
for weeks ended June 7, 1930, and June 8, 1929—Continued*

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended June 7, 1930	Week ended June 8, 1929	Week ended June 7, 1930	Week ended June 8, 1929	Week ended June 7, 1930	Week ended June 8, 1929	Week ended June 7, 1930	Week ended June 8, 1929
East South Central States:								
Kentucky.....		3			21	22	1	2
Tennessee.....	3	8	5	4	94	11	7	0
Alabama.....	8	11	13	20	130	40	4	0
Mississippi.....	5	4					3	0
West South Central States:								
Arkansas.....	3	1	1	21	31	9	1	0
Louisiana.....	8	10	16	17	23	25	4	3
Oklahoma ¹	5	6	12	4	79	52	0	2
Texas.....	8	20	23	12	183	140	1	0
Mountain States:								
Montana.....					46	64	1	2
Idaho.....	1	1			21	46	1	0
Wyoming.....	1				54	35	0	0
Colorado.....	8	3			503	9	0	2
New Mexico.....	11	3	1	1	62	8	1	0
Arizona.....		8	3	4	66	19	7	2
Utah ¹		4	6	2	212	5	3	1
Pacific States								
Washington.....	3	9			727	168	1	6
Oregon.....	5	4	8	8	105	156	1	0
California.....	58	42	20	24	1,934	112	7	11
Division and State	Polioomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended June 7, 1930	Week ended June 8, 1929	Week ended June 7, 1930	Week ended June 8, 1929	Week ended June 7, 1930	Week ended June 8, 1929	Week ended June 7, 1930	Week ended June 8, 1929
New England States:								
Maine.....	0	0	8	22	0	0	1	3
New Hampshire.....	0	0	13	12	0	0	0	0
Vermont.....	0	0	5	2	1	1	0	0
Massachusetts.....	0	0	218	180	0	2	8	6
Rhode Island.....	0	0	19	9	0	0	0	1
Connecticut.....	0	0	48	57	0	0	2	0
Middle Atlantic States:								
New York.....	0	3	402	309	3	2	20	17
New Jersey.....	1	2	202	120	0	0	6	2
Pennsylvania.....	2	2	210	256	0	0	10	14
East North Central States:								
Ohio.....	1	1	157	60	74	39	7	10
Indiana.....	0	0	88	146	96	88	19	0
Illinois.....	1	1	391	236	119	69	15	14
Michigan.....	0	3	273	402	39	65	2	4
Wisconsin.....	1	0	84	166	6	12	5	8
West North Central States:								
Minnesota.....	0	0	60	94	4	4	2	3
Iowa.....	0	2	37	58	97	30	3	3
Missouri.....	0	0	103	40	39	35	3	8
North Dakota.....	0	1	8	4	27	4	0	0
South Dakota.....	0	0	5	5	41	43	0	0
Nebraska.....	0	0	29	51	53	50	1	0
Kansas.....	0	0	48	64	53	63	5	4
South Atlantic States:								
Delaware.....	0	0	5	3	0	1	1	0
Maryland ¹	0	0	71	157	0	0	6	4
District of Columbia.....	0	1	4	14	0	0	3	0
West Virginia.....	0	1	15	12	29	21	10	3
North Carolina.....	5	1	16	13	7	7	16	12
South Carolina.....	2	3	4	5	4	8	45	127
Georgia.....	0	0	19	6	0	0	18	14
Florida.....	0	2	1	2	0	0	1	2

¹ Week ended Friday.

¹ Figures for 1930 are exclusive of Oklahoma City and Tulsa, and for 1929 are exclusive of Tulsa only.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended June 7, 1930, and June 8, 1929—Continued

Division and State	Pollomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended June 7, 1930	Week ended June 8, 1929	Week ended June 7, 1930	Week ended June 8, 1929	Week ended June 7, 1930	Week ended June 8, 1929	Week ended June 7, 1930	Week ended June 8, 1929
East South Central States:								
Kentucky.....	0	0	27	71	20	0	5	7
Tennessee.....	0	0	41	13	25	15	14	19
Alabama.....	2	1	8	6	7	0	8	26
Mississippi.....	1	0	4	5	4	0	24	25
West South Central States:								
Arkansas.....	1	0	2	11	2	0	12	5
Louisiana.....	0	0	19	13	26	2	30	23
Oklahoma ¹	0	0	14	26	66	82	9	7
Texas.....	1	0	18	55	37	165	12	24
Mountain States:								
Montana.....	0	0	28	7	7	9	2	1
Idaho.....	0	0	2	3	3	8	0	0
Wyoming.....	0	0	1	0	14	13	0	2
Colorado.....	0	0	10	14	7	17	0	3
New Mexico.....	1	1	8	8	9	1	0	2
Arizona.....	0	0	6	15	6	12	4	17
Utah ²	0	0	8	6	1	3	0	0
Pacific States:								
Washington.....	1	1	15	21	64	29	1	2
Oregon.....	1	0	14	15	18	21	2	1
California.....	31	3	114	437	46	27	12	8

¹ Week ended Friday.

² Figures for 1930 are exclusive of Oklahoma City and Tulsa, and for 1929 are exclusive of Tulsa only.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week.

State	Menin- gococ- cus menin- gitis	Diph- theria	Influ- enza	Ma- laria	Mea- sles	Pel- lagra	Polio- mye- litis	Scarlet fever	Small- pox	Ty- phoid fever
<i>April, 1930</i>										
Kansas.....	12	32	8	-----	3,386	-----	0	512	398	10
Nevada.....	-----	-----	-----	-----	38	-----	0	-----	36	-----
Ohio.....	58	194	92	2	3,521	-----	2	1,462	746	52
Oregon.....	1	25	118	-----	492	-----	2	109	101	10
<i>May, 1930</i>										
Connecticut.....	12	54	16	-----	232	-----	1	287	0	2
Nebraska.....	4	61	-----	3	1,685	-----	0	254	288	1
Vermont.....	-----	4	-----	-----	255	-----	0	18	3	-----
Wyoming.....	-----	9	-----	-----	178	-----	0	27	41	-----

<i>April, 1930</i>		Cases			Cases
Chicken pox:			German measles:		
Kansas.....	466	-----	Kansas.....	-----	106
Nevada.....	8	-----	Ohio.....	-----	167
Ohio.....	1,962	-----	Impetigo contagiosa:		
Oregon.....	156	-----	Oregon.....	-----	5
Diarrhea and enteritis (under 2 years):			Lead poisoning:		
Ohio.....	11	-----	Ohio.....	-----	17
Dysentery:			Lethargic encephalitis:		
Ohio.....	1	-----	Kansas.....	-----	5
Food poisoning:			Ohio.....	-----	7
Ohio.....	12	-----	Oregon.....	-----	1

[illegible]

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 96 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 31,770,000. The estimated population of the 89 cities reporting deaths is more than 30,180,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended May 31, 1930, and June 1, 1929

	1930	1929	Estimated expectancy
<i>Cases reported</i>			
Diphtheria:			
46 States.....	927	1, 292	-----
96 cities.....	471	753	770
Measles:			
46 States.....	14, 414	14, 293	-----
96 cities.....	5, 373	3, 990	-----
Meningococcus meningitis:			
46 States.....	131	259	-----
96 cities.....	54	139	-----
Pollomyelitis:			
47 States.....	41	18	-----
Scarlet fever:			
46 States.....	2, 710	3, 810	-----
96 cities.....	1, 136	1, 624	1, 053
Smallpox:			
46 States.....	758	935	-----
96 cities.....	94	54	59
Typhoid fever:			
46 States.....	227	274	-----
96 cities.....	44	41	46
<i>Deaths reported</i>			
Influenza and pneumonia:			
89 cities.....	487	636	-----
Smallpox:			
89 cities.....	0	0	-----

City reports for week ended May 31, 1930

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during non-epidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1921 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND								
Maine.....								
Portland.....	2	1	0	-----	0	8	35	2
New Hampshire:								
Concord.....	0	0	0	-----	0	0	0	0
Nashua.....	0	0	0	-----	0	0	0	0
Vermont:								
Barre.....	0	0	0	-----	0	16	0	0
Burlington.....	0	0	0	-----	0	0	0	0
Massachusetts:								
Boston.....	46	37	17	-----	0	467	36	17
Fall River.....	5	2	1	-----	0	1	2	2
Springfield.....	14	2	1	-----	0	4	3	3
Worcester.....	12	3	0	-----	0	132	0	0
Rhode Island:								
Pawtucket.....	13	1	0	-----	0	1	0	2
Providence.....	17	5	1	-----	0	9	0	4
Connecticut:								
Bridgeport.....	3	5	1	1	0	1	0	5
Hartford.....	4	4	2	-----	0	1	0	3
New Haven.....	2	1	0	-----	0	4	7	2

City reports for week ended May 31, 1930—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
MIDDLE ATLANTIC								
New York:								
Buffalo.....	28	10	5	-----	0	19	23	10
New York.....	128	252	87	17	4	1,386	120	120
Rochester.....	7	9	0	-----	0	22	1	3
Syracuse.....	21	4	0	-----	1	19	81	4
New Jersey:								
Camden.....	4	6	3	-----	0	4	1	2
Newark.....	19	12	19	2	0	165	15	2
Trenton.....	3	2	2	-----	0	0	0	4
Pennsylvania:								
Philadelphia.....	45	55	15	3	3	246	58	30
Pittsburgh.....	29	15	16	-----	0	210	12	21
Reading.....	0	2	1	-----	0	2	15	1
Scranton.....	4	3	1	-----	0	0	0	0
EAST NORTH CENTRAL								
Ohio:								
Cincinnati.....	3	6	4	-----	0	56	12	6
Cleveland.....	85	22	13	2	2	8	36	7
Columbus.....	6	3	3	-----	1	69	8	4
Toledo.....	21	4	2	1	1	24	7	2
Indiana:								
Fort Wayne.....	1	1	0	-----	1	0	0	1
Indianapolis.....	31	3	1	-----	0	36	7	9
South Bend.....		1	-----	-----	-----	-----	-----	-----
Terre Haute.....	0	0	1	-----	0	31	0	0
Illinois:								
Chicago.....	58	85	112	3	1	17	48	31
Springfield.....	0	0	0	-----	0	5	0	2
Michigan:								
Detroit.....	49	42	41	-----	0	325	52	18
Flint.....	8	2	0	-----	0	275	1	0
Grand Rapids.....	4	1	0	-----	0	1	0	3
Wisconsin:								
Kenosha.....	6	0	0	-----	0	0	0	1
Madison.....	2	0	2	-----	0	22	1	0
Milwaukee.....	69	12	2	1	1	10	76	3
Racine.....	3	1	0	1	0	9	0	0
Superior.....	12	0	0	-----	0	1	0	0
WEST NORTH CENTRAL								
Minnesota:								
Duluth.....	10	0	0	-----	0	11	0	1
Minneapolis.....	95	14	7	-----	1	33	20	3
St. Paul.....	29	8	0	-----	0	7	6	4
Iowa:								
Des Moines.....	0	1	1	-----	-----	0	0	-----
Sioux City.....	4	0	0	-----	-----	32	1	-----
Waterloo.....	6	0	0	-----	-----	1	0	-----
Missouri:								
Kansas City.....	16	2	3	-----	0	5	3	8
St. Joseph.....	0	0	0	-----	0	0	0	0
St. Louis.....	23	32	23	-----	-----	21	17	15
North Dakota:								
Fargo.....	2	0	0	-----	0	10	18	1
Grand Forks.....	0	0	0	-----	-----	0	0	-----
South Dakota:								
Sioux Falls.....	0	0	0	-----	-----	2	0	-----
Nebraska:								
Lincoln.....	12	0	1	-----	0	0	0	0
Omaha.....	10	2	5	-----	0	27	0	4
Kansas:								
Topeka.....	22	0	1	-----	0	79	6	1
Wichita.....	0	1	1	-----	0	45	4	1

City reports for week ended May 31, 1930—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneu- monia, deaths reported
		Cases, estimated expect- ancy	Cases reported	Cases reported	Deaths reported			
SOUTH ATLANTIC								
Delaware:								
Wilmington.....	2	1	1	-----	0	0	0	1
Maryland:								
Baltimore.....	78	20	15	-----	0	31	8	24
Cumberland.....	0	0	0	-----	0	0	0	0
Frederick.....	1	0	0	-----	0	0	0	0
District of Columbia:								
Washington.....	14	9	8	-----	0	68	0	5
Virginia:								
Lynchburg.....	7	0	1	-----	1	14	1	1
Norfolk.....	8	0	1	-----	0	8	29	1
Richmond.....	1	0	1	-----	0	1	1	1
Roanoke.....	2	0	2	-----	0	170	1	1
West Virginia:								
Charleston.....	4	0	0	1	0	2	2	2
Wheeling.....	4	0	0	-----	0	7	0	1
North Carolina:								
Raleigh.....	4	0	0	-----	0	0	0	0
Wilmington.....	3	0	0	-----	0	0	0	0
Winston-Salem..	5	0	0	-----	0	1	4	1
South Carolina:								
Charleston.....	0	0	0	10	0	0	0	1
Columbia.....	3	0	0	-----	0	1	4	0
Georgia:								
Atlanta.....	6	1	0	10	1	38	11	5
Brunswick.....	0	0	0	-----	0	0	4	0
Savannah.....	1	0	1	1	0	8	2	2
Florida:								
Miami.....	2	2	3	-----	0	20	4	1
St. Petersburg..	-----	0	-----	-----	0	-----	-----	1
Tampa.....	2	0	1	-----	0	55	5	0
EAST SOUTH CENTRAL								
Kentucky:								
Covington.....	0	0	0	-----	0	0	0	0
Tennessee:								
Memphis.....	10	1	1	-----	3	0	13	5
Nashville.....	3	0	1	-----	1	42	0	1
Alabama:								
Birmingham.....	1	1	3	1	1	10	4	8
Mobile.....	0	0	1	-----	0	4	0	1
Montgomery.....	1	0	0	-----	-----	0	0	-----
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith.....	1	0	1	-----	-----	18	0	-----
Little Rock.....	0	0	0	-----	0	0	0	3
Louisiana:								
New Orleans.....	0	6	7	1	1	0	0	13
Shreveport.....	0	0	0	-----	0	5	5	1
Oklahoma:								
Oklahoma City..	0	1	0	1	0	18	2	3
Tulsa.....	1	0	0	-----	-----	3	0	-----
Texas:								
Dallas.....	1	3	0	-----	0	90	1	5
Fort Worth.....	1	0	1	-----	0	12	1	1
Galveston.....	0	0	0	-----	0	0	0	0
Houston.....	0	2	4	-----	0	5	0	3
San Antonio.....	1	2	2	-----	0	3	0	9
MOUNTAIN								
Montana:								
Billings.....	0	0	0	-----	0	5	2	0
Great Falls.....	6	0	0	-----	0	0	2	0
Helena.....	0	0	0	-----	0	1	0	0
Missoula.....	0	0	0	-----	0	0	0	0
Idaho:								
Boise.....	0	0	0	-----	0	4	0	1

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
MOUNTAIN—contd.								
Colorado:								
Denver.....		8						
Pueblo.....	3	1	0		0	29	53	0
New Mexico:								
Albuquerque.....	3	0	1		1	4	4	1
Arizona:								
Phoenix.....	0	0	0		0	9	0	3
Utah:								
Salt Lake City....	7	3	0		0	229	5	1
Nevada:								
Reno.....	0	0	0		0	2	0	1
PACIFIC								
Washington:								
Seattle.....	23	3	0			208	36	
Spokane.....	14	2	2			18	0	
Tacoma.....	1	1	2		0	130	0	3
Oregon:								
Portland.....	9	5	4		0	27	5	7
Salem.....	6	0	1		0	0	5	0
California:								
Los Angeles.....	46	2	25	9	0	236	40	14
Sacramento.....	2	3	1		0	28	11	2
San Francisco.....	27	15	3	1	1	70	77	2

[illegible]

City reports for week ended May 31, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culosis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
EAST NORTH CENTRAL											
Ohio:											
Cincinnati.....	13	10	2	3	0	12	1	0	0	6	86
Cleveland.....	35	44	0	0	0	16	1	0	0	57	183
Columbus.....	7	6	1	0	0	3	0	0	0	3	83
Toledo.....	8	15	1	3	0	6	0	0	0	0	54
Indiana:											
Fort Wayne.....	2	0	2	1	0	1	0	0	0	4	25
Indianapolis.....	11	7	8	8	0	2	0	0	0	8	-----
South Bend.....	2		0			0					-----
Terre Haute.....	1	2	0	0	0	0	0	0	0	0	12
Illinois:											
Chicago.....	102	217	2	1	0	35	2	2	0	56	604
Springfield.....	3	0	0	0	0	0	1	1	0	1	13
Michigan:											
Detroit.....	87	63	1	2	0	21	2	0	0	87	248
Flint.....	8	3	2	5	0	1	0	0	0	18	19
Grand Rapids.....	7	13	0	0	0	0	0	0	0	3	30
Wisconsin:											
Kenosha.....	1	2	0	0	0	0	0	0	0	1	6
Madison.....	2	4	0	0	0	1	0	0	0	20	22
Milwaukee.....	25	20	0	0	0	10	0	1	0	45	80
Racine.....	4	3	1	0	0	0	0	0	0	4	16
Superior.....	2	1	0	0	0	0	0	0	0	0	13
WEST NORTH CENTRAL											
Minnesota:											
Duluth.....	7	1	0	0	0	0	3	0	0	8	25
Minneapolis.....	31	8	2	0	0	3	0	0	0	2	80
St. Paul.....	19	7	0	0	0	3	0	1	0	18	63
Iowa:											
Des Moines.....	6	8	2	12	-----	-----	0	0	-----	0	31
Sioux City.....	1	4	1	0	-----	-----	0	0	-----	2	-----
Waterloo.....	2	0	0	12	-----	-----	0	0	-----	0	-----
Missouri:											
Kansas City.....	9	10	1	0	0	4	1	0	0	18	90
St. Joseph.....	1	3	0	0	0	1	0	0	0	1	25
St. Louis.....	24	65	2	4	0	15	1	1	1	14	206
North Dakota:											
Fargo.....	0	0	0	0	0	0	0	0	0	3	7
Grand Forks.....	1	0	0	0	-----	-----	0	0	-----	0	-----
South Dakota:											
Sioux Falls.....	1	2	0	9	-----	-----	0	0	-----	0	4
Nebraska:											
Lincoln.....	1	2	-----	1	0	0	0	0	0	6	17
Omaha.....	3	7	3	11	0	3	0	0	0	5	54
Kansas:											
Topeka.....	2	2	0	0	0	0	0	0	0	14	12
Wichita.....	2	3	1	2	0	0	0	0	0	8	23
SOUTH ATLANTIC											
Delaware:											
Wilmington.....	3	9	0	0	0	0	0	0	0	1	33
Maryland:											
Baltimore.....	27	35	0	0	0	11	2	3	0	21	196
Cumberland.....	1	0	0	0	0	1	0	0	0	0	10
Frederick.....	0	0	0	0	0	0	0	1	0	0	1
District of Colum- bia:											
Washington.....	18	11	0	0	0	13	1	1	0	3	122
Virginia:											
Lynchburg.....	0	1	0	0	0	0	0	1	0	5	12
Norfolk.....	1	1	1	0	0	1	0	0	0	2	-----
Richmond.....	2	5	0	0	0	4	0	1	0	2	42
Roanoke.....	0	0	0	0	0	0	0	0	0	2	18
West Virginia:											
Charleston.....	0	0	0	0	0	0	0	0	0	3	10
Wheeling.....	2	0	0	0	0	0	0	0	0	0	15
North Carolina:											
Raleigh.....	0	0	0	1	0	1	0	0	1	0	15
Wilmington.....	0	0	0	0	0	0	0	0	0	11	8
Winston-Salem.....	0	1	0	0	0	2	1	0	0	12	21

City reports for week ended May 31, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
SOUTH ATLANTIC— continued											
South Carolina:											
Charleston.....	0	0	0	0	0	1	0	0	0	2	23
Columbia.....	0	0	0	0	0	2	1	0	0	4	15
Georgia:											
Atlanta.....	4	0	4	4	0	8	1	0	0	4	80
Brunswick.....	0	0	0	0	0	0	0	0	0	0	6
Savannah.....	0	1	0	0	0	1	1	0	0	1	32
Florida:											
Miami.....	0	2	0	0	0	3	1	0	0	1	21
St. Petersburg.....	0	0	0	0	0	0	0	0	0	0	10
Tampa.....	0	0	0	0	0	0	0	0	0	0	
EAST SOUTH CEN- TRAL											
Kentucky:											
Covington.....	1	1	0	0	0	0	0	0	0	0	22
Tennessee:											
Memphis.....	4	9	0	0	0	1	2	4	0	1	81
Nashville.....	2	2	1	3	0	2	2	2	0	0	39
Alabama:											
Birmingham.....	1	0	3	0	0	11	1	0	0	5	62
Mobile.....	0	0	0	2	0	1	1	0	0	0	20
Montgomery.....	0	0	0	0	0	0	0	0	0	0	
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith.....	0	0	0	0	0	0	1	0	0	0	
Little Rock.....	0	1	0	0	0	0	1	0	0	0	
Louisiana:											
New Orleans.....	4	0	0	0	0	13	2	5	1	0	145
Shreveport.....	0	1	1	0	0	3	0	1	0	3	24
Oklahoma:											
Oklahoma City.....	2	14	2	8	0	1	0	1	0	0	36
Tulsa.....	2	4	2	1	0	0	0	0	0	9	
Texas:											
Dallas.....	2	2	2	1	0	3	1	0	0	5	58
Fort Worth.....	2	1	2	0	0	3	1	0	0	0	39
Galveston.....	0	0	0	0	0	0	0	0	0	0	9
Houston.....	2	0	1	3	0	4	0	0	0	0	76
San Antonio.....	1	0	0	0	0	12	1	0	0	2	106
MOUNTAIN											
Montana:											
Billings.....	0	1	0	0	0	0	0	0	0	0	3
Great Falls.....	1	6	0	0	0	0	0	0	0	0	8
Helena.....	0	0	0	0	0	0	0	0	0	0	2
Missoula.....	0	0	1	0	0	0	0	0	0	0	4
Idaho:											
Boise.....	0	0	0	0	0	0	0	1	0	1	6
Colorado:											
Denver.....	9	0	0	0	0	0	0	0	0	0	
Pueblo.....	1	0	0	2	0	0	0	0	0	3	8
New Mexico:											
Albuquerque.....	1	0	0	0	0	6	0	0	0	0	13
Arizona:											
Phoenix.....	1	1	0	0	0	4	0	1	0	0	22
Utah:											
Salt Lake City.....	2	0	1	0	0	2	0	0	0	44	32
Nevada:											
Reno.....	0	0	0	3	0	0	0	0	0	0	5
PACIFIC											
Washington:											
Seattle.....	7	2	1	2	0	0	0	0	0	8	
Spokane.....	4	0	5	11	0	0	0	0	0	31	
Tacoma.....	3	3	3	2	0	0	0	0	0	3	24
Oregon:											
Portland.....	4	2	8	13	0	2	0	0	0	10	74
Salem.....	0	0	0	0	0	0	0	0	0	0	
California:											
Los Angeles.....	27	15	4	3	0	25	1	3	1	21	206
Sacramento.....	2	7	2	6	0	4	1	0	0	5	23
San Francisco.....	17	8	1	0	0	8	1	1	1	1	158

City reports for week ended May 31, 1930—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Massachusetts:									
Boston.....	6	2	0	0	0	0	0	0	0
Springfield.....	0	0	0	1	0	0	0	0	0
Worcester.....	1	0	0	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
New York.....	4	3	4	2	0	0	1	1	0
New Jersey:									
Newark.....	3	0	0	0	0	0	1	0	0
Pennsylvania:									
Philadelphia.....	2	2	0	0	0	0	0	0	0
EAST NORTH CENTRAL									
Ohio:									
Cincinnati.....	1	0	0	0	0	0	0	0	0
Cleveland.....	0	0	0	0	0	0	0	1	0
Columbus.....	0	0	0	0	0	0	0	1	0
Indiana:									
Indianapolis.....	1	1	0	0	0	0	0	0	0
Illinois:									
Chicago.....	2	0	0	0	0	0	0	1	
Michigan:									
Detroit.....	12	7	1	0	0	0	0	0	0
Flint.....	0	2	0	0	0	0	0	0	0
Wisconsin:									
Madison.....	1	0	0	0	0	0	0	0	0
Milwaukee.....	0	1	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
Duluth.....	0	0	0	0	0	0	0	1	0
St. Paul.....	1	1	0	0	0	0	0	0	0
Missouri:									
Kansas City.....	1	1	0	0	0	0	0	0	0
St. Louis.....	2	2	0	0	0	0	0	0	0
SOUTH ATLANTIC									
Maryland:									
Baltimore.....	4	1	0	0	0	0	0	0	0
North Carolina:									
Raleigh.....	0	0	0	0	1	1	0	0	0
Winston-Salem.....	0	0	0	0	1	0	0	0	0
South Carolina:									
Charleston.....	0	0	0	0	13	0	0	0	0
Georgia:									
Atlanta.....	1	0	0	0	2	0	0	0	0
Savannah ¹	0	0	0	0	3	0	0	0	0
EAST SOUTH CENTRAL									
Kentucky:									
Covington.....	0	1	0	0	0	0	0	0	0
Tennessee:									
Memphis.....	4	1	0	0	0	2	0	0	0
Alabama:									
Birmingham.....	1	0	0	0	0	0	0	0	0
Mobile.....	0	0	0	0	1	2	0	0	0
WEST SOUTH CENTRAL									
Louisiana:									
New Orleans.....	1	0	0	0	4	1	0	1	0
Shreveport.....	0	0	0	0	0	4	0	3	0
Oklahoma:									
Oklahoma City.....	0	0	0	0	0	1	0	0	0
Tulsa.....	2	1	0	0	0	0	0	0	0
Texas:									
Dallas.....	0	0	0	0	1	1	0	0	0
San Antonio.....	1	0	0	0	0	0	0	0	0

¹ Typhus fever: 1 case at Savannah, Ga.

City reports for week ended May 31, 1930—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Pollomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
MOUNTAIN									
Utah.									
Salt Lake.....	3	0	0	0	0	0	0	0	0
PACIFIC									
Washington.									
Seattle.....	1	0	0	0	0	0	0	0	0
Spokane.....	1	0	0	0	0	0	0	1	0
California:									
Los Angeles.....	1	1	0	0	0	0	1	4	0
Sacramento.....	0	0	0	0	1	0	0	0	0
San Francisco.....	0	1	0	1	0	1	0	0	0

The following table gives the rates per 100,000 population for 98 cities for the 5-week period ended May 31, 1930, compared with those for a like period ended June 1, 1929. The population figures used in computing the rates are approximate estimates, authoritative figures for many of the cities not being available. The 98 cities reporting cases have an estimated aggregate population of more than 32,000,000. The 91 cities reporting deaths have more than 30,500,000 estimated population.

Summary of weekly reports from cities, April 27 to May 31, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929¹

DIPHTHERIA CASE RATES

	Week ended—									
	May 3, 1930	May 4, 1929	May 10, 1930	May 11, 1929	May 17, 1930	May 18, 1929	May 24, 1930	May 25, 1929	May 31, 1930	June 1, 1929
98 cities.....	85	135	79	139	76	124	81	135	77	124
New England.....	75	81	60	118	97	94	62	108	51	90
Middle Atlantic.....	76	190	89	206	78	159	80	188	71	168
East North Central.....	131	160	104	145	92	143	117	165	112	155
West North Central.....	66	77	44	104	74	123	70	100	76	110
South Atlantic.....	46	69	57	64	49	62	49	49	55	41
East South Central.....	0	21	7	27	40	27	27	14	40	7
West South Central.....	101	99	78	88	71	110	56	46	52	57
Mountain.....	43	61	69	52	60	26	51	61	60	35
Pacific.....	71	72	57	39	50	56	69	60	78	58

MEASLES CASE RATES

	1,332	928	1,443	894	1,207	890	1,185	903	882	659
98 cities.....	1,332	928	1,443	894	1,207	890	1,185	903	882	659
New England.....	1,779	496	2,109	490	1,688	431	1,719	552	1,426	864
Middle Atlantic.....	1,353	165	1,365	186	1,410	196	1,150	196	991	183
East North Central.....	1,015	2,322	936	2,194	830	2,138	692	2,286	634	1,507
West North Central.....	983	1,776	1,213	1,549	659	1,753	778	1,441	514	1,083
South Atlantic.....	1,096	434	1,187	521	1,123	474	875	242	725	298
East South Central.....	209	130	499	41	405	69	641	27	378	55
West South Central.....	785	343	762	366	788	331	587	430	486	236
Mountain.....	5,758	444	8,891	296	6,624	183	6,934	313	4,624	252
Pacific.....	2,069	287	2,324	422	1,949	425	2,544	529	1,630	398

¹ The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1930 and 1929, respectively.

² South Bend, Ind., Sioux City, Iowa, and Denver, Colo., not included.

³ South Bend, Ind., and Denver, Colo., not included.

⁴ South Bend, Ind., not included.

⁵ Sioux City, Iowa, not included.

⁶ Denver, Colo., not included.

Summary of weekly reports from cities, April 27 to May 31, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929—Continued

SCARLET FEVER CASE RATES

	Week ended—									
	May 3, 1930	May 4, 1929	May 10, 1930	May 11, 1929	May 17, 1930	May 18, 1929	May 24, 1930	May 25, 1929	May 31, 1930	June 1, 1929
98 cities.....	303	299	264	289	* 230	290	210	268	* 186	269
New England.....	246	278	234	260	239	247	288	281	281	269
Middle Atlantic.....	300	245	231	209	234	230	215	196	171	193
East North Central.....	398	467	321	454	* 308	472	229	449	* 267	447
West North Central.....	376	262	233	277	* 252	281	300	208	209	179
South Atlantic.....	269	114	222	243	157	210	150	159	115	273
East South Central.....	148	226	155	130	27	103	115	137	81	123
West South Central.....	123	274	101	309	78	179	52	118	15	160
Mountain.....	352	78	360	52	* 171	104	292	113	* 120	96
Pacific.....	128	345	151	292	149	207	113	336	83	246

SMALLPOX CASE RATES

	28	12	24	11	* 22	11	20	14	* 15	9
98 cities.....										
New England.....	0	0	2	2	0	0	0	7	0	0
Middle Atlantic.....	1	0	0	0	0	0	0	0	1	0
East North Central.....	21	15	23	17	* 15	14	10	20	* 13	15
West North Central.....	124	13	99	27	* 117	15	108	15	55	15
South Atlantic.....	0	0	0	0	4	2	2	4	9	0
East South Central.....	40	21	7	27	81	14	34	27	34	7
West South Central.....	34	42	41	8	* 22	50	11	15	15	19
Mountain.....	146	122	77	26	* 120	148	69	35	* 80	52
Pacific.....	85	39	97	39	54	14	83	75	57	27

TYPHOID FEVER CASE RATES

	7	8	7	11	* 8	9	7	8	* 7	7
98 cities.....										
New England.....	2	7	0	11	9	9	18	7	11	2
Middle Atlantic.....	3	5	4	3	7	6	4	5	3	3
East North Central.....	6	3	3	6	* 2	3	5	3	* 3	3
West North Central.....	4	10	8	31	* 8	6	8	8	9	17
South Atlantic.....	5	11	15	15	13	17	11	15	13	19
East South Central.....	27	27	20	27	47	0	27	75	40	34
West South Central.....	22	30	4	53	37	65	11	11	22	19
Mountain.....	61	9	17	0	* 0	0	0	17	* 17	0
Pacific.....	7	10	24	7	2	7	7	10	9	2

INFLUENZA DEATH RATES

	9	8	10	10	* 8	8	6	10	* 4	7
91 cities.....										
New England.....	4	2	9	2	0	2	4	7	0	7
Middle Atlantic.....	10	6	10	8	7	8	8	8	4	4
East North Central.....	7	5	9	7	* 4	7	5	8	* 4	9
West North Central.....	9	18	3	3	3	0	0	15	3	3
South Atlantic.....	15	11	5	17	18	7	5	6	4	6
East South Central.....	22	30	15	37	44	30	22	45	37	0
West South Central.....	23	8	31	27	4	4	8	27	4	12
Mountain.....	0	17	0	26	* 0	17	9	9	* 0	17
Pacific.....	6	16	9	13	15	22	6	6	3	16

PNEUMONIA DEATH RATES

	139	123	137	109	* 104	106	103	116	* 80	105
91 cities.....										
New England.....	151	106	120	90	102	88	100	121	89	106
Middle Atlantic.....	172	136	185	123	130	114	137	129	94	113
East North Central.....	108	125	93	101	* 68	115	80	118	* 54	101
West North Central.....	112	126	124	105	106	75	83	123	68	120
South Atlantic.....	187	109	121	109	156	120	101	94	82	112
East South Central.....	140	172	162	149	96	90	88	104	110	112
West South Central.....	119	90	178	94	* 84	109	88	66	130	66
Mountain.....	60	165	120	87	* 51	13	120	139	* 51	113
Pacific.....	52	72	64	94	58	47	43	82	64	63

* South Bend, Ind., Sioux City, Iowa, and Denver, Colo., not included.

* South Bend, Ind., and Denver, Colo., not included.

* South Bend, Ind., not included.

* Sioux City, Iowa, not included.

* Denver, Colo., not included.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Week ended May 24, 1930.—The Department of Pensions and National Health reports cases of certain communicable diseases in eight Provinces of Canada for the week ended May 24, 1930, as follows:

Province	Cerebro-spinal fever	Dysentery	Influenza	Lethargic encephalitis	Polio-myelitis	Smallpox	Typhoid fever
Prince Edward Island ¹	-----	-----	-----	-----	-----	-----	-----
Nova Scotia.....	-----	-----	7	-----	-----	-----	1
New Brunswick.....	-----	-----	-----	-----	-----	-----	2
Quebec.....	-----	-----	-----	-----	-----	-----	7
Ontario.....	4	-----	4	1	1	24	5
Manitoba.....	-----	-----	-----	-----	-----	7	-----
Saskatchewan.....	-----	-----	-----	-----	-----	10	3
British Columbia.....	1	2	-----	-----	-----	2	-----
Total.....	5	2	11	1	1	43	18

¹ No case of any disease included in the table was reported during the week.

Quebec Province—Communicable diseases—Week ended May 31, 1930.—The Bureau of Health reports cases of certain communicable diseases for the week ended May 31, 1930, as follows:

Diseases	Cases	Diseases	Cases
Cerebrospinal meningitis.....	2	Measles.....	124
Chicken pox.....	76	Mumps.....	59
Diphtheria.....	31	Puerperal fever.....	1
Erysipelas.....	4	Scarlet fever.....	89
German measles.....	58	Tuberculosis.....	52
Influenza.....	2	Typhoid fever.....	8

CUBA

Habana—Communicable diseases—May, 1930.—During the month of May, 1930, certain communicable diseases were reported in Habana, Cuba, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Chicken pox.....	40	-----	Measles.....	14	-----
Diphtheria.....	14	4	Scarlet fever.....	19	2
Leprosy.....	3	-----	Typhoid fever ¹	11	-----
Malaria.....	8	1			

¹ Many of these cases are from the interior.

GREAT BRITAIN

England and Wales—Vital statistics—January–March, 1930.—During the first quarter of the year 1930, 158,671 births and 131,946 deaths were registered in England and Wales, giving a birth rate on an annual basis, of 16.2 per 1,000 population, and a death rate of 13.5 per 1,000. The figures are provisional. The mortality of infants under 1 year of age was 77 per 1,000 live births.

During the 13 weeks ended March 29, 1930, deaths from certain communicable diseases were reported in 107 county boroughs and great towns, including Greater London, as follows:

Disease	Number of deaths	Death rate per 1,000 population ¹	Disease	Number of deaths	Death rate per 1,000 population ¹
Diarrhea and enteritis (under 2 years).....	680	-----	Scarlet fever.....	161	0.03
Diphtheria.....	698	0.14	Smallpox.....	9	-----
Influenza.....	1,000	.20	Typhoid fever.....	31	-----
Measles.....	1,259	.26	Whooping cough.....	419	.09

¹Annual basis.

Deaths from certain communicable diseases were reported in 157 smaller towns for the quarter ended March 31, 1930, as follows:

Disease	Deaths	Disease	Deaths
Diarrhea and enteritis (under 2 years).....	93	Scarlet fever.....	22
Diphtheria.....	139	Smallpox.....	4
Influenza.....	209	Typhoid fever.....	4
Measles.....	188	Whooping cough.....	106

England and Wales—Communicable diseases—Thirteen weeks ended March 29, 1930.—During the 13 weeks ended March 29, 1930, cases of certain communicable diseases were reported in England and Wales as follows:

Disease	Cases	Disease	Cases
Diphtheria.....	23,327	Puerperal pyrexia.....	1,488
Ophthalmia neonatorum.....	1,348	Scarlet fever.....	35,679
Pneumonia.....	19,173	Smallpox.....	4,796
Puerperal fever.....	729	Typhoid fever.....	521

JAMAICA

Communicable diseases—Four weeks ended May 24, 1930.—During the four weeks ended May 24, 1930, cases of certain communicable diseases were reported in Kingston, Jamaica, and in the island of Jamaica, outside of Kingston, as follows:

Disease	Cases		Disease	Cases	
	Kingston	Other localities		Kingston	Other localities
Cerebrospinal meningitis.....		1	Lethargic encephalitis.....		1
Chicken pox.....	6	22	Puerperal fever.....		2
Diphtheria.....	1		Tuberculosis.....	27	69
Dysentery.....	1	3	Typhoid fever.....	9	32
Leprosy.....		1			

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

From medical officers of the Public Health Service, American consuls, International Office of Public Hygiene, Pan American Sanitary Bureau, health section of the League of Nations, and other sources. The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

CHOLERA

[C indicates cases; D, deaths; P, present]

Place	Dec. 15, 1929- Jan. 11, 1930	Jan. 12- Feb. 8, 1930	Feb. 9- Mar. 8, 1930	Week ended—													
				March, 1930				April, 1930				May, 1930				June, 1930	
				15	22	29	5	12	19	26	3	10	17	24	31	7	14
China:																	
Canton.....	C																
Manchuria—Dairen.....	C																
India.....	C	12,350	6,441	5,914	2,278	2,087	4,018		7,436								
Basseln.....	D	6,507	3,606	3,371	1,225	1,526	2,186		4,348								
Bombay.....	D																
Calcutta.....	C	138	202	289	53	110	94	137	165	165		194	175	142			
Nagapatam.....	D	90	110	153	73	51	71	85	118	118		93	125	107	83		
Rangoon.....	D	1	12														
Tuticorin.....	D	1	4														
India (French):	D	6	3	3	1												
Chandernagor.....	D	35	3														
Karikal.....	D	9	1														
Indo-China (see also table below):	C	1															
Pnompenh.....	D	1															
Saigon and Cholon.....	D	3	11	9	1	2	1	2									
	D	3	8	7	1	6	1	6									
	D	1	2	5	1	1	6	10	12	19	28	59	40	2	2		
	D	1	2	4	5			10	10	13	22	43	27	48	24		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

CHOLERA—Continued

[C Indicates cases; D, deaths; P, present]

Place	Week ended —															
	Dec 15, 1929- Jan 11, 1930	Jan. 12- Feb. 8, 1930	Feb 9- Mar. 8, 1930	March, 1930			April, 1930			May, 1930				June, 1930		
				15	22	29	5	12	19	26	3	10	17	24	31	7	14
Philippine Islands:																
Bulacan, Malolos.....	C															1
Cebu—	D															1
Bantayan.....	C															
Santa Fe.....	D															2
Manila.....	D															3
Negros—	C															7
Cadiz.....	C															1
Escalante.....	D															
San Antonio.....	D															2
Rizal—Navatos.....	D															7
Siam.....	D															1
Bangkok.....	D															1
Nagara Pathom.....	D															
On vessel:																
S. S. at Suva, Fiji Islands.....	C															
S. S. Sutley, at Batavia, from Calcutta.....	C															
S. S. Sassari, at Massoua, from Jeddah.....	C															
On small boat at Port Cebu, from Bantayan Island.....	D															1
	D															1

: Diagnosis not confirmed

Place	Novem- ber, 1929	Decem- ber, 1929	January, 1930			February, 1930			March, 1930			April, 1930		
			1-10		11-20	1-10	11-20	21-28	1-10	11-20	21-31	1-10	11-20	21-30
			1-10	11-20	21-31	1-10	11-20	21-28	1-10	11-20	21-31	1-10	11-20	21-30
Indo-China (French) (see also table above):														
Annam ¹	2	41	1			2	2			52				60
Cambodia ¹	43	41			79	41	3	46	49	32			18	6
Cochin-China ¹	15	46	67		110	64	39	21	5	22	55	48		

¹ Reports incomplete.

PLAGUE

[C indicates cases, D, deaths, P, present]

Place	Dec. 15, 1929- Jan. 11, 1930	Jan. 12- Feb. 8, 1930	Feb. 9- Mar. 8, 1930	Week ended—											
				March, 1930			April, 1930			May, 1930			June, 1930		
				15	22	29	5	12	19	26	3	10	17	24	31
Argentina:															
Andalgala. ¹		P													
Rosario.....		6													
Santa Fe.....			2												
Villa Lta.....															
Azores, Ponta Delgada.....	P														
Brazil:															
Rio de Janeiro.....		1													
Sao Paulo. ¹		1													
British East Africa (see also table below):															
Tanganyika.....			7												
Uganda.....															
Colombo.....	127	82	47						11	33					
Plague-infected rats.....	112	70	43	28	33	28	27	19	10	10					
Chile: Antofagasta.....	2	4	3	1	1	1	2		1	1	4	1			
	1	4	3	1	1	1	2		1	1	3	1			
		1	1	2							2				
		1	1	1	2						1				

¹ On Mar. 11, 3 deaths from bubonic plague were reported in Andalgala, Catamarca Province, Argentina, since Feb. 5, 1930.² 21 cases of plague with 8 deaths were reported Jan. 20, 1930, in the State of Sao Paulo, Brazil; 15 of these cases were in the city of Sao Paulo.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE—Continued

[C indicates cases; D, deaths; P, present]

Place	Dec. 15, 1929- Jan. 11, 1930	Jan. 12- Feb. 8, 1930	Feb. 9- Mar. 8, 1930	Week ended—													
				March, 1930				April, 1930				May, 1930				June, 1930	
				15	22	29	5	12	19	26	3	10	17	24	31	7	14
Dutch East Indies:																	
Batavia and West Java.....	288	167	153	34	41	23	28	27	16	20							
Plague-infected rats.....	280	164	150	33	42	23	25	27	16	20							
Celebes—Makassar.....		3	3		2		1		6	2							
C.....		1															
Plague-infected rodents.....	4																
East Java and Madura.....	2																
C.....	2																
D.....	2																
Java and Madura.....	438	317	296	59	73	45	46	59	40		8						
Ecuador (see table below). Egypt:																	
Alexandria.....	2	4	1	1	1	1	1	1		1	1	2	3	3	5	3	
C.....	3	1			1						1	1		1	2		
Assiout.....	4											7	9	2	6	4	
D.....	2										3	2	3	1	1		
Assuan.....	2			3	1												
C.....	2			3													
Behlra.....		2				1											
Beni Suef.....				3													
Dakahlieh.....	1		8	4	1	1		2		1	2	3	1	2	5	1	
C.....	1																
Gharbieh.....	2	1		1						1							
D.....	1																
Girga.....																	
Minieh.....								1									
C.....																	
Port Said.....																	
Greece (see also table below):																	
Patras.....																	
Piraeus.....																	
C.....																	
Pyrgos.....																	
C.....	4,713	4,814	5,659	1,060	1,187	1,005	805		343								
D.....	3,093	3,308	3,940	838	911	889	706		229								
India:																	
Bassein.....				1		1											
C.....																	
Bombay.....				1		2	3	1	4								
D.....				1		2	2	1	3								
Plague-infected rats.....	29	28	31	31	7	33	25	20	28	25	35	23	39				

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE—Continued

(C indicates cases; D, deaths; P, present)

Place	No- vem- ber, 1929	De- cem- ber, 1929	Jan- ru- ary, 1930	Feb- ru- ary, 1930	March, 1930	April, 1930	Place	No- vem- ber, 1929	De- cem- ber, 1929	Jan- ru- ary, 1930	Feb- ru- ary, 1930	March, 1930	April, 1930
British East Africa (see also table above):													
Kenya.....	157	54	34				Madagascar—Continued.	5	3		25		
Uganda.....	179	216	87				Miamiravo Province.....	5	3		25		
	164	199	75				Morananga Province.....	4	12	22	7	5	
Ecuador: Guayaquil.....	14	17	4	2	2	0	Tamatave Province.....	3	12	21	4	5	
Plague-infected rats.....	3	6	2	2	2	0	Tananarive Province.....	2	2	3			
Ecuador (outside of Guayaquil).....	9	13	4	2	2	0		103	97	88	110		
		19	4				Tananarive Province.....	2	2	1			
Greece (see also table above).....		5	2					98	98	83	107		
	2	1					Senegal						
Indo-China (see also table above).....	10	10	10	30	27	4	Baol ¹	23	5			18	24
Madagascar (see also table above).....	182	264	282				Dakar ¹	16	2			8	12
	163	248	258					17	8			1	1
Ambositra Province.....	42	111	128	49			Louga ¹	5	1		2		33
Antsirabe Province.....	33	96	111				Thies ¹	1		3			10
	5	16	26	22								3	12
Itasy Province.....	5	16	25	22			Tiassane ¹	2				2	9
	10	19	31					8		1		11	61
	10	16	31					4				8	35

¹ Incomplete reports.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place	Nov. 17- Dec. 14, 1929	Dec. 15, 12- Jan. 8, 1930	Jan. 9- Feb. 8, 1930	Feb. 9- Mar. 8, 1930	Week ended—											
					March, 1930			April, 1930			May, 1930			June 7, 1930		
					15	22	29	5	12	19	26	3	10	17	24	31
China:																
Canton.....	4	5	7	11	1	1	4			2	1					
Chungking.....			2	3												
Foochow.....			P	P	P	P	P									
Hong Kong.....	62	102	118	62	12	10	5	11	20	7						
Manchuria—	55	73	109	51	6	10	4	5	11	9	3	1	4	2	3	
Harbin.....																
Kwantung—Dairen	2	1	3													
Nanking.....			6	5	P	P										
Shanghai.....			P	P								P	P		7	
Foreigners only.....																
Swatow.....	5	7	5	2	1											
Tientsin.....	2	6	8	7	4	1	1	2	4	3	2	1	1	1	2	
Chosen (see table below).	4	2	1	1												
Colombia:																
Baranquilla.....																
Buenaventura.....	56	13		102	1	1										
Costa Rica:	1			1												
Port Limon.....																
San Jose.....																
Curacao (alastrium).....																
Dahomey (see table below).																
Dutch East Indies:																
Belawan Deli.....																
Borneo.....	1	1														
Java:																
Batavia and West Java.....																
East Java and Madura.....	37	17	14	14	2	10	16	50	30	25	8	1	1	1	5	
	13	10	7	7	1	1	2	2	6	1	3	1	1			

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SPECIAL ARTICLES

Quarantine Regulations of Airships Against Yellow Fever
Acute Response of Guinea Pigs to "Cellosolve" Vapor
Quantitative Colorimetric Reaction for Ergot Alkaloids



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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. R. C. WILLIAMS, *Chief of Division*

The PUBLIC HEALTH REPORTS are issued weekly by the United States Public Health Service through its Division of Sanitary Reports and Statistics, pursuant to acts of Congress approved February 15, 1893, and August 14, 1912.

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QUARANTINE REGULATIONS OF AIRSHIPS AGAINST YELLOW FEVER

REPORT OF THE PRESIDENT OF THE COMMISSION ON YELLOW FEVER AT THE
MEETING OF THE PERMANENT COMMITTEE OF THE INTERNATIONAL OFFICE OF
PUBLIC HYGIENE, MAY, 1930

[Translation]

In the course of the present session of the committee, the Commission on Yellow Fever has held three sittings, the first of which took place on Saturday, May 10, and the second on Monday, May 12. There were present at these two sittings Messrs. Lutrario (reporter of the Commission on Aerial Navigation), Inspector General Lasnet, General Boyé, Major General Graham, Dr. Rupert Blue, Ricardo Jorge, de Vogel, Doctor Van Campenhout (reporter), and James (president).

In order to reply to the request for information by the Commission on Aerial Navigation, the first task of our committee has been to examine into what sanitary measures could be applied to aerial navigation as it relates to yellow fever. In this examination we have utilized the report of Doctor Van Campenhout which was communicated at the last session of the committee, and the epidemiological conclusions that our commission formulated at the time of the last session, as well as some results of recent researches which have permitted the imposition of effective measures to prevent the spread of yellow fever. Unhappily, in trying to draw up a program of aerial regulation based on this document, we have found ourselves face to face with great difficulties. At first, by reason of the lack of a member representing South America, we were constrained to examine the subject principally from the point of view of the relations with Central Africa and the Belgian Congo. This limitation is all the more regrettable since we have learned, in the course of our work, that there has been established in South America along a coastal route across the yellow fever regions, a hydroplane service, for which there are points of departure and landing only on the sea. With regard to this information one asks how the regulations relative to aerodromes can be applied to the air ports of this service. Another difficulty is that, up to the present time, we have no satisfactory data on the habits of mosquitoes in respect to airplanes, airships, and hydroplanes. The question of the transportation of adult mosquitoes aboard vessels was fully discussed in the International Sanitary Conferences of 1912 and 1926. As a result of these conferences it is admitted that all the

more recent experiences tend to show that the transportation of adult mosquitoes aboard a vessel is extremely rare. As to their transport aboard airplanes and other aircraft, we know nothing; but, in spite of that, there are some hygienists who insist that there is real danger. Besides, we have found ourselves in the face of a third difficulty. We know that it is doubtful whether we can base proposals for quarantine measures against yellow fever on recent laboratory researches in monkeys. Considering the errors which have followed the acceptance of *Leptospira icteroides* as the specific germ of yellow fever, as well as the inconclusive and variable results of the recent laboratory researches on monkeys, our commission is persuaded that, important as the results of late researches appear to be, the data derived from epidemiological experience with the disease in man, such as is produced in nature, merits much more consideration in respect to prophylactic measures of practical order.

For all of these reasons we believe that it is perhaps premature to seek to formulate articles for an aerial convention applicable to yellow fever.

Nevertheless, being informed of the fact that the Commission on Aerial Navigation has urged us to prepare a rough draft, our commission has attempted to do the best it could. In consequence, the articles of our provisional program, which concerns only the airships having their points of landing on the ground, are included in the tentative plan set forth in the reports of the Quarantine Commission on Aerial Navigation. With regard to certain of these articles relating to the organization of aerodromes, the opinion of the members of the commission was unanimous. With regard to others, there were, on the contrary, wide divergences. In particular, there was discussed at length the article which imposes on passengers starting out from an infected area a period of observation of six days before embarkation and a supplementary period of surveillance of six days after arrival. With regard to this subject the majority of the members of the commission were in favor of the propositions which we have submitted to you.

The commission met the third time on Wednesday, May 14. Attending this meeting were Inspector General Lasnet, General Boyé, General Graham, Ricardo Jorge, de Vogel, Doctor Mimbela, Doctor Van Campenhout (reporter), and James (president.) The purpose of this meeting was to examine the proposal submitted to the committee to modify article 36 (2) of the International Sanitary Convention of 1926, by reducing from five days to three days the period during which a person sick with yellow fever is considered infectious.

With regard to this matter it will be recalled that, in the International Sanitary Convention of 1911-12, it was accepted as an established fact that all of the experiences have tended to show that the period of infectivity does not extend beyond three days (p. 295, P. V.

Conf., 1911-12). However, the conference of 1926 extended this period to five days on the suggestion of Doctor Chagas, who said that Noguchi had isolated the *Leptospira icteroides* from the peripheral blood of certain cases up to the fifth day (p. 477, P. V. Conf., 1926). As we know to-day that the *Leptospira icteroides* is not the specific germ of yellow fever, it appears necessary to return to the fundamental basis of our epidemiological knowledge, which teaches that there exists no known example of mosquitoes being infected following a human feeding made after the third day of the sickness.

The opinion of the commission was unanimous on this point; but it thought that it could not propose a modification of the text of the convention unless the delegates from South America were given opportunity to express their opinion on this point. It was then decided to refer the question to the next session, hoping that the delegates from South American countries would be present in greater number at that session, or that they would be able in the meantime to arrange to give assent by correspondence. However, in the program of provisions concerning aerial navigation, which is presented to you, the commission holds to three days as the limitation of the period during which a person sick with yellow fever should be isolated.

ACUTE RESPONSE OF GUINEA PIGS TO VAPORS OF SOME NEW COMMERCIAL ORGANIC COMPOUNDS

III. "CELLOSOLVE" (MONO-ETHYL ETHER OF ETHYLENE GLYCOL)*

By C. P. WAITE, Assistant Surgeon,¹ F. A. PATTY, Assistant Physiological Chemist, and W. P. YANT, Supervising Chemist, Health Laboratory Section, Pittsburgh Experiment Station, Bureau of Mines

This report on the acute response of guinea pigs to Cellosolve (mono-ethyl ether of ethylene glycol) vapor is the third of a series of similar reports which deal with studies pertinent to evaluation of the hazards involved in exposure to some chemical products which have recently reached, or promise to reach, important domestic and industrial use. The investigation was undertaken at the request of the Carbide & Carbon Chemicals Corporation, and was conducted jointly with the United States Bureau of Mines at its Pittsburgh Experiment Station. The first report of the series dealt with exposure to ethylene dichloride vapor² and the second with exposure to ethyl benzene vapor.³

*Published by permission of the Director, U. S. Bureau of Mines. Submitted for publication March 28, 1930.

¹ Assistant Surgeon, United States Public Health Service, detailed to the Bureau of Mines.

² Sayers, R. R., Yant, W. P., Waite, C. P., and Patty, F. A.: Acute response of guinea pigs to vapors of some new commercial organic compounds: I. Ethylene dichloride. Pub. Health Rep., vol. 45, No. 5, Jan. 31, 1930.

³ Yant, W. P., Schrenk, H. H., Waite, C. P., and Patty, F. A.: Acute response of guinea pigs to vapors of some new commercial organic compounds: II. Ethyl benzene. Pub. Health Rep., vol. 45, No. 22, May 30, 1930.

PRESENT USE OF CELLOSOLVE

Cellosolve is principally used as a solvent for nitrocellulose and resins in the manufacture of lacquers and lacquer thinners. It has a particular use in making the so-called odorless lacquers which are desirable for household and architectural purposes, and in industry for leather finishes, lacquers for refrigerators, kitchen cabinets, and similar articles.

SCOPE OF WORK

The scope of the work included a study of the toxicity of Cellosolve and the physiological response to its vapors as determined by exposure of guinea pigs. Only the acute effects as produced by a single exposure were studied. The experiments were planned to give information relative to the concentrations and periods of exposure which produce but slight response, moderate response, and serious response.

DESCRIPTION OF MATERIAL USED FOR TESTS

Cellosolve is the trade name for the mono-ethyl ether of ethylene glycol ($\text{CH}_2\text{OH}\cdot\text{CH}_2\text{OC}_2\text{H}_5$). The pure liquid compound has a boiling point of 134.8°C .; specific gravity, 0.9305 at $20/20$; flash point, 40°C .; and vapor pressure, 4.6 mm. Hg. at 20°C . The vapors are approximately three times heavier than air. Cellosolve is completely miscible with water; it is colorless, and possesses a mild, rather agreeable, ethereal odor in low concentrations and a disagreeable odor in high concentrations.

The Cellosolve used in the tests described in this report was a commercial product which conformed to the following plant specifications:

Specific gravity: 0.927 to 0.933 at $20/20^\circ\text{C}$.

Initial boiling point: Not less than 128°C . at 760 mm.

Boiling range: Not less than 95 per cent distills over from 130° to 136°C . at 760 mm.

Dry point: Not higher than 137°C . at 760 mm.

Acidity: A 50 c. c. sample shall not contain more than the equivalent of 0.3 c. c. normal acid or alkali.

Volatile chlorides: Not more than 0.01 per cent.

TEST APPARATUS, TEST PROCEDURE, DESCRIPTION, AND CARE OF ANIMALS

The test apparatus, test procedure, and description and care of animals were the same as described in the previous report dealing with ethylene dichloride.⁴ The composition of the atmosphere was determined by calculation from the quantity of material vaporized

⁴ See footnote 2.

and quantity of air used for diluting the vapor. The calculated concentrations in air were checked by absorption of the vapor from a given volume of vapor-air mixture with air-equilibrated activated charcoal and determining the gain in weight.

RESULTS OF TESTS

The detailed test data are too voluminous to be presented in this report; accordingly, only summarized results pertinent to symptoms, gross pathology, and fatality are given. Specimens of tissue were taken for microscopic examination, a report of which will be made later.

SYMPTOMS OF ANIMALS

Control animals.—The control and stock animals showed no unnatural behavior. Neither symptoms nor death occurred in 8 days following exposure for 16 and 24 hours to test conditions, lacking Cellosolve vapor.

Exposed animals.—The symptoms exhibited by the exposed animals were inactivity, weakness, dyspnea, and death. Exposure to 0.6 per cent vapor for 8 hours caused death to 1 animal 2 days after exposure. Exposure to 0.6 per cent vapors for 24 hours caused the deaths of 4 animals of a group of 6 during the test. The two animals remaining appeared to be weak, were inactive, and one showed dyspnea. One of these was killed immediately after test for autopsy and the remaining one died three hours later. Exposure to 0.3 per cent for 16 and 24 hours and 0.6 per cent for 8 hours caused the animals to remain quiet and inactive toward the end of the test period. The exposure to 0.3 per cent vapors for 16 hours caused the death of 1 animal of a group of 6 in 8 days after test; and 24 hours exposure to 0.3 per cent caused the death of 5 of a group of 6 within 24 hours after test. The remaining animal died three days later.

Exposure to 0.1 per cent vapor for 16 and 24 hours caused the death of 1 animal of each group in 3 days and 2 days, respectively, following the exposure.

Exposure to 0.6 per cent vapors for 1 hour and 4 hours, 0.3 per cent for 4 hours and 8 hours, and 0.05 per cent for 16 hours and 24 hours, caused no symptoms and no deaths.

SYMPTOMS OF MEN EXPOSED TO CELLOSOLVE VAPOR

Two of the investigators breathed 0.6 per cent Cellosolve vapors for a few seconds and reported the atmosphere to be irritating to the eyes and to have a very disagreeable odor. They thought that the odor and the irritation were sufficiently disagreeable to make one desire to avoid a like exposure.

GROSS PATHOLOGY

Control animals.—Nineteen control animals were killed for autopsy. No pathological changes were found to resemble those encountered in the test animals.

Exposed animals.—Exposure to 0.6 per cent for 24 hours caused the death of 4 of the group of 6 animals during exposure. One of the remaining animals died three hours after exposure. The principal findings were congestion and edema of the lungs. The stomach was distended, with numerous reddish-brown petechiæ, resembling petechial hemorrhages, over the mucous membrane, and a reddish-brown discoloration of the contents. The kidneys were congested.

Exposure to 0.3 per cent for 24 hours caused the death of 5 of the group of 6 pigs, 24 hours after the exposure. The prominent lesion was an acute congestion and edema of the lungs and a hyperemia of the kidneys. The congestion and edema gave place to a bronchopneumonia in the remaining member of the group that died three days following exposure.

The findings in animals exposed to 0.6 per cent for 8 hours, 0.3 per cent for 16 hours, 0.10 per cent for 16 hours and 24 hours, all of which caused death to 1 animal of each group within 8 days after test, were an acute congestion and edema of the lungs with a congestion of the kidneys. Animals of these groups that were killed immediately after test showed congestion and edema of the lungs. Autopsy made on 2 pigs immediately after exposure to 0.3 per cent vapors for 16 hours revealed the stomach to be dilated. The lining mucous membrane showed a number of brownish-red petechiæ scattered throughout resembling points of hemorrhage. The congestion of the lungs was considerably less 8 days after exposure to 0.1 per cent for 16 hours and 24 hours; in the other exposures the congestion was still present and quite noticeable after 8 days.

The prominent finding in animals which were exposed to 0.6 per cent vapors for 4 hours, and 0.3 per cent for 8 hours, none of which caused death during or following exposure, was an apparent parenchymatous change noted in the kidneys of those pigs which were killed 4 days after exposure. Animals autopsied 8 days following exposures were negative for pathology.

Guinea pigs exposed to 0.6 per cent vapors for 1 hour, 0.3 per cent for 4 hours, and 0.05 per cent for 16 hours showed no pathological changes on autopsy immediately after test or within 8 days.

DISCUSSION OF PATHOLOGY

The gross pathological changes encountered in guinea pigs exposed to Cellosolve vapor-air mixtures were chiefly those resulting from lung irritation.

In the light of only gross findings and the occurrence of hemorrhage into the stomach in only two groups of animals the explanation of its

occurrence is difficult. It should be noted, however, that this condition was not found in any of the control animals. Similar findings in the small intestine and stomach have already been reported to be caused by exposure to methyl chloride.^{5,6}

The kidney changes noted in two of the groups were apparently of a secondary and temporary nature, inasmuch as they were found only in those pigs which were killed 4 days following exposure.

SUMMARY OF FATALITY AND RESPONSE

A summary of the fatality and response of guinea pigs exposed to Cellosolve vapor in air is shown graphically in Figure 1 and given in

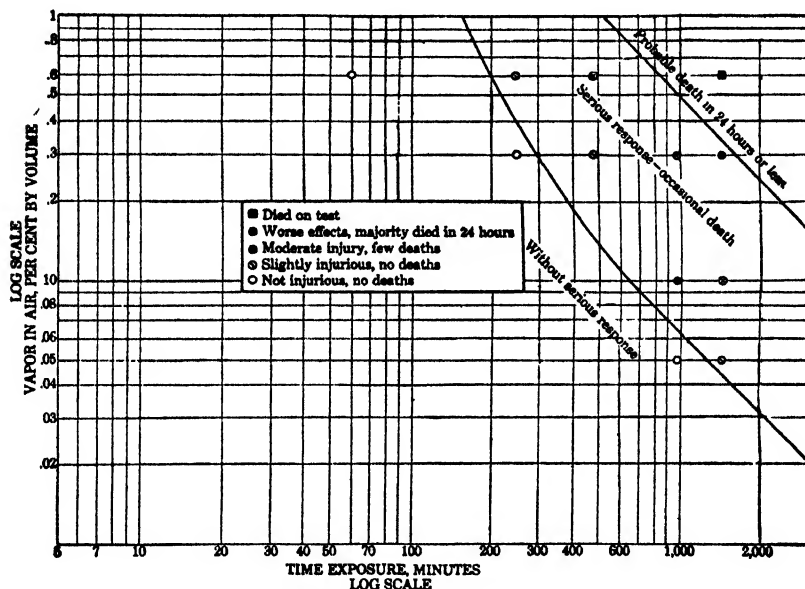


FIGURE 1.—Acute effects of exposure of guinea pigs to Cellosolve vapor in air

four conventional degrees in Table 1. Each point on the graph represents the average response of a group of animals simultaneously exposed to a particular test condition.

Table 1 gives four conventional degrees of response usually reported in the literature, and may be used for comparison with toxicological data for other compounds.^{7,8,9,10}

¹ Sayers, R. R., Yant, W. P., Thomas, B. G. H., and Berger, L. B.: Physiological response attending exposure to vapors of methyl bromide, methyl chloride, ethyl bromide, and ethyl chloride. Public Health Bulletin No. 185 (1929), 56 pp.

² Kegel, A. H., McNally, W. D., and Pope, A. S.: Methyl chloride poisoning from domestic refrigerators. Jour. Amer. Med. Assn., vol. 93 (1929), pp. 353-358.

³ See footnotes 2, 3, and 5.

⁴ International Critical Tables, first edition (1927), vol. 2, p. 318. Also see errata sheet, vol. 2.

⁵ Henderson, Y., and Haggard, H. W.: Noxious Gases. American Chemical Society Monograph No. 85, 1927, Chemical Catalog Co., New York.

¹⁰ Fieldner, A. C., Katz, S. H., and Kinney, S. P.: Gas masks for gases met in fighting fires. U. S. Bureau of Mines Tech. Paper No. 248, 1921, 56 pp.

TABLE 1.—*Acute effects of exposure of guinea pigs to Cellosolve vapor*

Kills in a very short time	Dangerous in 30 to 60 minutes	Maximum amount for 60 minutes without serious disturbances	Slight symptoms after several hours or maximum amount without serious disturbances
(*)	(*)	(*)	0.1

* No effect from 0.6 per cent, which is the amount present in saturated air at room temperatures.

Because of its comparatively low vapor pressure, the highest concentration of Cellosolve vapor that could be obtained at room temperature, 20° C., was 0.6 per cent by volume. Only slight response was noted after approximately three hours' exposure to this condition. An occasional death, however, occurred after about eight hours' exposure. It required 24 hours' continuous exposure to saturated air to kill the animals during exposure and a similar period to half-saturated air to kill all of a group in 24 hours after exposure. It should be noted that the maximum periods of exposure used for experiments with Cellosolve are much longer than those used in the previously published work with ethylene dichloride and ethyl benzene (references cited). It was necessary to extend the periods of exposure to obtain lethal conditions. These did not occur with exposure of six to eight hours to air saturated with Cellosolve vapor at room temperature.

RELATION OF SYMPTOMS TO FATALITY FOLLOWING EXPOSURE

It has been stated under description of symptoms that the only symptoms noted were inactivity, weakness, and dyspnea. These occurred only after prolonged exposure to high concentrations of vapor. Death either during or following exposure, however, invariably accompanied the symptoms. The dyspnea was particularly indicative of congestion and edema of the lungs.

GENERAL DISCUSSION OF HEALTH HAZARDS AND WARNING PROPERTIES

A comparison of the toxicity data obtained for Cellosolve with the data reported in the literature for other common compounds¹¹ can be made only for the degree of response referred to as "slight symptoms after several hours or maximum amount without serious disturbances." In this respect it appears to have a relative toxicity of approximately the same order as carbon tetrachloride and benzene, when considering acute poisoning. As previously stated, the vapor pressure of Cellosolve at room temperature made it impossible to obtain concentrations that would yield data within the time range of

¹¹ See footnotes 5, 8, 9, and 10.

the other three conventional degrees of response given in Table 1 of this report. Also, the comparatively low vapor pressure lessens its potential health hazards. If, however, Cellosolve is used at elevated temperatures such as in drying ovens, higher concentrations may be encountered.

Air saturated at room temperatures with Cellosolve vapor possesses a disagreeable odor and also produces moderate eye irritation. If these properties are heeded as warning of the occurrence of a potentially dangerous atmosphere, and exposure is avoided, it is believed that acute poisoning will not occur.

The investigation described in this report pertains to the effects of a single exposure, and the results do not apply to the possible effects of repeated exposure. Although no indications were observed that suggested the possibility of chronic Cellosolve poisoning, nevertheless in the use of new substances of this kind it is always recommended that in so far as possible (1) exposure should be reduced to a minimum and (2) unavoidably exposed workmen should be regularly given complete physical examinations. Nearly all organic vapors are toxic and present potential health hazards, and much remains to be learned about the effects of repeated exposure to relatively small amounts.

SUMMARY AND CONCLUSIONS

The acute physiological response of guinea pigs to air containing Cellosolve (mono-ethyl ether of ethylene glycol) vapor was determined. The concentration of vapor and periods of exposure ranged from those which produced death to those which caused no apparent effect after 24 hours' exposure. The symptoms, gross pathology, and fatality are given, together with a discussion of potential health hazards.

1. The symptoms exhibited after 18 to 24 hours' exposure to air saturated with Cellosolve vapor (0.6 per cent by volume) were inactivity, weakness, dyspnea, and death. Exposure to 0.6 per cent for 24 hours caused death at the end of the exposure; 0.3 per cent for 24 hours caused death in 24 hours following exposure; and exposure to 0.6 per cent for 10 hours, 0.3 and 0.1 for 18 hours, caused occasional death in from 1 to 8 days following exposure. Exposure to 0.6 per cent for 1 hour, 0.3 for 4 hours, and 0.05 for 14 hours caused no apparent harm.

2. The principal gross pathological findings were congestion and edema of the lungs; distention of the stomach, with numerous reddish-brown petechiæ scattered over the mucous membrane; and congestion of the kidney. The contents of the stomach were also discolored reddish brown. All these occurred in the animals that died during or soon after exposure. The congestion and edema were the

principal findings in the animals that died 24 hours following exposure and broncho-pneumonia in the animals that died three days following.

3. Due to comparatively low vapor pressure of Cellosolve it is not possible to create atmospheres at ordinary room temperatures which will produce serious acute poisoning in an hour.

4. Air saturated with Cellosolve vapor at room temperatures produces a disagreeable odor and produces moderate eye irritation. If these properties are heeded as warning of the occurrence of a potentially dangerous atmosphere it is believed that acute poisoning will not occur.

ACKNOWLEDGMENTS

The writers desire to give acknowledgment to J. G. Davidson, manager of chemical sales of the Carbide & Carbon Chemicals Corporation; to E. W. Reid, senior fellow of the firm's fellowship at the Mellon Institute, Pittsburgh, Pa., for sponsoring the investigation; to R. R. Sayers, chief surgeon, Bureau of Mines, for suggestions and advice; and to H. F. Brubach, laboratory assistant, for assistance in performing the experimental work.

A QUANTITATIVE COLORIMETRIC REACTION FOR THE ERGOT ALKALOIDS AND ITS APPLICATION IN THE CHEMICAL STANDARDIZATION OF ERGOT PREPARATIONS

By MAURICE I. SMITH, *Senior Pharmacologist, Hygienic Laboratory, United States Public Health Service*

The fluid extract of ergot, which is the United States Pharmacopœia official preparation of the crude drug used therapeutically, is a complex mixture of variable composition, containing alkaloids, proteinogenous amines, organic and inorganic salts, etc. The known pharmacologically active constituents are the alkaloids, certain sympathomimetic and other amines such as tyramin, histamine, isoamylamine, and certain other bases such as acetyl choline.¹

While it is not yet certain as to the rôle of the various amines and bases in the therapeutic use of ergot, it is very doubtful whether any of the ergot constituents other than the alkaloids serve any useful purpose in the oral administration of the drug, for even the most active known amines and bases contained in ergot are either not absorbed from the intestinal tract or are so rapidly destroyed there that no demonstrable pharmacologic effects can be ascribed to them.

Of the alkaloids that have been isolated from ergot and which are in great measure if not wholly responsible for the pharmacologic and therapeutic action of this drug, the following are known:

¹ For an excellent review of this subject the reader is referred to an article by Barger (1).

1. Ergotoxine $C_{35}H_{41}N_5O_6$ isolated by Barger, Carr, and Dale (2), (3), and subsequently shown by Dale and Spiro (4) to be pharmacologically identical with the more recently isolated alkaloid ergotamine.

2. Ergotamine $C_{33}H_{35}N_5O_5$ isolated by Stoll (5) and studied pharmacologically by Spiro and Stoll (6) and Stoll and Rothlin (7).

3. Ergotaminine, an isomer of ergotamine, also isolated by Stoll and shown by Rothlin (8) to be physiologically inactive, or only slightly so.

4. Ergotinine crystalline $C_{35}H_{39}N_5O_5$ isolated by Tanret in 1875 (9). This is a dehydration product of ergotoxine, differing from it by one molecule of water and said to be physiologically inactive (8) or only one-fourth as active as ergotoxine (10). It appears to be readily convertible to the more active amorphous ergotinine.

5. Ergotinine amorphous of Tanret (9) $C_{35}H_{41}N_5O_6$, which, according to Barger and Dale (10), appears to be an impure mixture of ergotinine and ergotoxine and physiologically similar to the ergotoxine of Barger and Carr (2).

It is not at all surprising, therefore, in view of the chemical complexity of ergot and its preparations, that chemical standardization of the drug should have been looked upon with disfavor and that more difficult pharmacologic methods have been resorted to. For many years the cockscomb method of assay, first suggested by Kobert (11) and in 1911 described by Edmunds and Hale (12), has been used in this country. This is now the official method of the United States Pharmacopœia for the standardization of ergot. Though generally held to be specific for the ergot alkaloids, this method has not been found uniformly satisfactory, on account of lack in accuracy. Thus Barger and Dale (10), Schegg (13), Issekutz and Leinzinger (14), Braun (15), and Broom and Clark (16) assert that the cockscomb method, though satisfactory as a qualitative test, is not sufficiently accurate and therefore unsuitable for the quantitative assay of ergot or its alkaloids. This has also been the experience of the present writer, a matter which will be discussed more fully in a subsequent publication. Broom and Clark (16) have indeed proposed a different biological method for the standardization of ergot, more difficult and more time-consuming, but more accurate. This is based upon the well-known pharmacologic action of antagonism of epinephrine and the ergot alkaloids upon the augmentor sympathetic nerve supply to smooth muscle. It should be added that both methods aim at measuring the alkaloidal content of ergot preparations.

With the increasing accumulation, in recent years, of evidence of the paramount importance of the ergot alkaloids in ergot therapy, there has been a tendency to place more reliance upon such chemical

methods of assay as are capable of estimating the alkaloidal content in the crude drug. Forst (17) in 1926 described a chemical gravimetric method for the standardization of ergot by which the total alkaloids are isolated quantitatively and with a sufficient degree of purity to the exclusion of other constituents. This is a rather difficult process and not generally applicable. It requires a large amount of crude drug (500 gms. for a single estimation), the technique is involved and time-consuming, and it would probably not yield consistent results except in the hands of the thoroughly experienced worker.

As to the value of the foregoing method it is not certain whether or not the total alkaloids so obtained represent quantitatively the physiologic activity of the drug. Forst gives some pharmacologic evidence on this point, but it is only of a qualitative nature. In a more recent publication Schübel and Straub (18) extended the method of Forst to a series of preparations of certain ergot specialties, generally low in alkaloidal content, and obtained further qualitative evidence of a general parallelism between the chemical and certain physiological tests. Specifically, they found that preparations containing ergot alkaloids as determined by the method of Forst gave the epinephrine vasomotor reversal (19), while those devoid of or very low in alkaloidal content failed to produce the reversal phenomenon.

In the course of some work on certain phases of the problem of bioassay of ergot, we became impressed with the desirability of having a quick and reliable method for the chemical evaluation of the alkaloidal content of ergot preparations. A consideration of this problem led to the examination of certain of the chemical reactions supposed to be characteristic of the ergot alkaloids with a view to developing a color reaction suitable for colorimetric comparison. The so-called Tanret-Keller reaction, first described by Tanret (9) for ergotinine and later again by Keller (20), was not found satisfactory; for, though the ring test is quite distinctive, no clear homogeneous color of sufficient stability suitable for colorimetric reading could be obtained. Van Urk (21), however, has recently described a modification of the Tanret-Keller ring test, in which Ehrlich's reagent, para-dimethyl-amino-benzaldehyde in alcohol is used, which makes the test far more sensitive. The test as carried out by Van Urk is as follows: The alkaloid, after extraction with ether, is dissolved in ethyl alcohol. To 1 c. c. of this solution is added 1 c. c. of a 1 per cent solution of para-dimethyl-amino-benzaldehyde in ethyl alcohol, and concentrated H_2SO_4 is allowed to flow to the bottom of the tube, whereupon a violet or blue ring is formed at the junction of the two layers. This test as applied by Van Urk to ergotamine tartrate gave a perceptible ring test with as little as 0.001 mg. of the alkaloid.

Examination of this reaction at once confirmed Van Urk's claims as to its sensitiveness. An attempt made to obtain a homogeneous color for quantitative colorimetric examination was not successful, however, for two reasons: First, the color so obtained was a mixture of pink and blue, sometimes the one, sometimes the other predominating, making accurate colorimetric comparison impossible; second, the color did not develop at once to its maximum intensity, and when it did, it began to fade rather rapidly.

It was thus impossible to get a definite state of equilibrium.² A series of experiments was then begun with a view to modifying this reaction so as to make it applicable for quantitative colorimetric work; and as a result of this work the method described below was evolved.

The alkaloid, from whatever source, should be obtained in an aqueous tartaric acid solution. A definite volume thereof up to 2 c. c. is measured into a suitable container. We have found shell vials, 5 cm. high and 2 cm. in diameter with polished flat bottoms, such as are used in hydrogen ion work, very convenient. Sufficient water is added to make 2 c. c., and exactly 1 c. c. of M/60 para-dimethyl-amino-benzaldehyde³ in concentrated sulphuric acid is run in from a burette down the sides of the tube. The contents are thoroughly mixed and placed, if possible, in direct sunlight. A clear violet-blue color gradually develops, at a rate depending upon the intensity of the light, and when developed to its maximum depth it is quantitatively proportional to the amount of alkaloid in the system. In direct sunlight the color develops its maximum intensity in from 10 to 15 minutes, while in diffuse daylight of a cloudy day it may take from half an hour to two hours or longer. When the color has developed to its maximum intensity it is read in the colorimeter⁴ against a standard solution of known concentration of ergotamine tartrate prepared in the same manner.

The following is an illustration of the manner in which the test is carried out:

An aqueous 1 per cent tartaric acid solution of ergot alkaloids recovered from ether was made up to 20 c. c. Two tubes of 1 and 2 c. c., respectively, of this solution were prepared, and to the first 1 c. c. H₂O added. To both tubes 1 c. c. of the reagent was added. At the same time three tubes containing 0.06, 0.08, and 0.10 mg., respectively, of ergotamine tartrate each in 2 c. c. H₂O were prepared and 1 c. c. of the reagent was added. The tubes were all exposed to

² This was subsequently found to be due to the alcohol present in the system, which seriously interferes with the photochemical reaction to be described below.

³ Specials Chemicals Co., Highland Park, Ill.

⁴ We have used the Klett Bio-colorimeter with micro plungers and cups, for which 1 to 2 c. c. is sufficient for a determination.

direct sunlight for 30 minutes, after which the readings with 0.1 mg. ergotamine tartrate as the standard at 15 were as follows:

$$0.08 \text{ mg. ergotamine tartrate} = \frac{15}{20.0} \times 0.10 = 0.075 \text{ mg.} = 94\%.$$

$$0.06 \text{ mg. ergotamine tartrate} = \frac{15}{24.6} \times 0.10 = 0.061 \text{ mg.} = 101\%.$$

$$1.0 \text{ c. c. of the unknown} = \frac{15}{16.8} \times 0.10 = 0.089 \times 20 = 1.78 \text{ mg.}$$

$$2.0 \text{ c. c. of the unknown} = \frac{15}{8.4} \times 0.10 = 0.178 \text{ mg.} \times 10 = 1.78 \text{ mg.}$$

From this it is evident that the unknown solution contained the equivalent of 1.78 mg. ergotamine tartrate, and that the method may be expected to yield results accurate to within 5 to 10 per cent.

SOME PHYSICO-CHEMICAL CHARACTERISTICS OF THE REACTION

As the reaction was worked out with a view to making it quantitative for the ergot alkaloids, a number of points came to light, an understanding of which is essential before it can be safely applied in the chemical standardization of ergot. They will be taken up in order.

1. *The influence of certain nonspecific constituents of ergot.*—A number of substances known to occur in ergot were examined in order to discover any possible interference with the reaction as used herein for the ergot alkaloids. The substances so used included histamine, tyramine, ergosterol, acetyl choline and choline hydrochloride. None of these substances either gave any reaction with the reagent or interfered with the quantitative estimation of ergotamine tartrate added to them in known amounts.

2. *The influence of certain oxidizing and reducing agents.*—Oxidizing agents were found seriously to interfere with the reaction. H_2O_2 , NaNO_2 , and FeCl_3 , substances often used to intensify the Tanrét-Keller ring test presumably characteristic of ergotinine, have been found greatly to interfere with the color reaction as used herein for the ergot alkaloids. Some quantitative experiments were made on this subject with NaNO_2 which yielded the following results:

$$0.06 \text{ mg. ergotamine tartrate} + 0.01 \text{ mg. NaNO}_2 = \frac{15}{21.0} \times 0.04 = 0.023 \text{ mg. or } 38\%.$$

$$0.06 \text{ mg. ergotamine tartrate} + 0.001 \text{ mg. NaNO}_2 = \frac{15}{15.2} \times 0.04 = 0.039 \text{ mg. or } 65\%.$$

$$0.06 \text{ mg. ergotamine tartrate} + 0.001 \text{ mg. NaNO}_2 = \frac{15}{17.0} \times 0.04 = 0.035 \text{ mg. or } 58\%.$$

Several reducing agents, such as magnesium in HCl , H_2S , Na_2SO_3 , and NaCN , were tried. The first was without effect and the last three markedly interfered with the reaction. It is not clear at present whether or not the oxidizing and reducing substances interfering

with the reaction also destroy simultaneously the chemical identity and physiologic activity of the alkaloid.

3. *Unidentified substance in ergot*.—One other interfering substance that may materially affect the results when the reaction is applied in the quantitative estimation of the alkaloidal content in ergot is an unidentified substance occurring in ergot which is soluble in ether, and insoluble in water, but soluble in alkali. From its appearance and behavior it seems to correspond to the yellow pigment $C_{15}H_{14}O_7$ isolated and identified by Freeborn (22). While insoluble in water, it may form colloidal aqueous solution, and if present in sufficient amount along with the alkaloids it may entirely obscure the color reaction of the latter. Until this was realized, much difficulty was encountered in obtaining uniformly good checks in estimates of the alkaloidal content of ergot, but the method to be described as finally worked out, entirely circumvents this difficulty.

4. *The influence of light upon the reaction*.—As stated previously the reaction of para-dimethyl-amino-benzaldehyde in H_2SO_4 with the ergot alkaloids is a photochemical one. If left in the dark, no color develops. Light is essential for the reaction and the speed of the reaction is intimately connected with the intensity of the light.

The light factor in relation to the present reaction was studied from a qualitative as well as a quantitative standpoint. First, experiments were made to ascertain the wave length of the rays of the spectrum concerned with this reaction. Ultra-violet rays were excluded by the fact that irradiation of the solution in a pyrex tube was just as effective in developing the color as in a quartz tube. Carbon arc irradiation of a series of tubes placed in a reflecting box provided with tightly fitting glass screens of different light transmissibility showed that the short visible rays of the spectrum, of approximate length of 300 to 400 millimicrons, were essential in this reaction. The experiment was made with a series of tubes each containing 0.06 and 0.08 mg. ergotamine tartrate, exposed for 30 minutes; and at the end of that time the color developed was estimated colorimetrically in terms of alkaloid as measured against a standard solution rayed directly without the interposition of any screens. The results of this experiment are shown in Table 1.

TABLE 1.—*Character of spectral rays concerned with the reaction of para-dimethyl-amino-benzaldehyde with the ergot alkaloids*

Screen used	Rays transmitted (23) (millimicrons)	Per cent of standard
Window glass.....	290 and over.....	100
G 586 A 6 mm.....	320 to 400; 700 and over.....	100
G 585 I 4 mm.....	310 to 480; 700 and over.....	80-100
G 584 J 4 mm.....	340 to 460.....	80
Noviol O 5 mm.....	400 and over.....	60
G 401 GZ 4 mm.....	480 to 610.....	0
G 88 H 5 mm.....	485 and over.....	0

The factor of light intensity in relation to this reaction was studied by irradiating a series of tubes each containing 0.1 mg. ergotamine tartrate exposed to a light of constant intensity ⁵ at a definite distance, and at definite intervals colorimetric readings were made against suitable standards. The findings of this series of experiments are summarized in Table 2, from which it is clearly seen that the reaction bears a direct relationship to the time of radiation and at a given time is roughly inversely proportional to the distance between the source of light and the radiated tubes. The reaction does not follow the law of inverse square of the distance, as might be expected, on account of the reflecting character of the lamp used, the rays of light being reflected more nearly parallel than radially. These results are plotted and shown graphically in Figure 1. The time of exposure is plotted

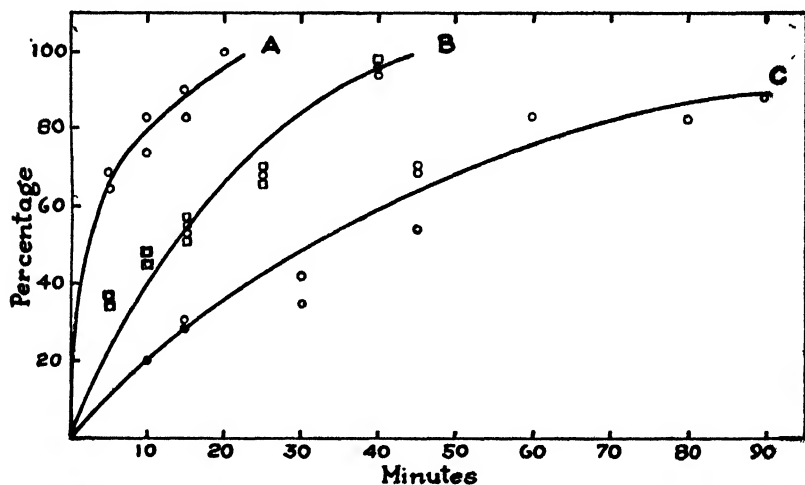


FIGURE 1.—Influence of light intensity upon the photochemical reaction of para dimethyl amine benzaldehyde and the ergot alkaloids ergotamine and ergotoxine. Source of light was carbon-arc lamp, reflecting type, 110 volts, 10 amperes. A—Tubes radiated at 15 cm. from the lamp. B—Radiated at 30 cm. from the lamp; circles represent findings with ergotamine tartrate, squares with ergotoxine base. C—Tubes radiated at a distance of 60 cm. from the lamp

in minutes on the abscissae and the photochemical reaction, plotted on the ordinates, is expressed in terms of per cent of alkaloid found by colorimetric reading at definite intervals. Curve A represents the time reaction of the tubes radiated at 15 cm., curve B at 30 cm., and curve C at 60 cm. from the source of light. Curves A and C were constructed from experiments with ergotamine tartrate. Curve B represents results obtained with crystalline ergotoxine base in aqueous tartaric acid solution in addition to experiments with ergotamine tartrate. The former are marked in squares and the latter in circles. It will be seen that with decreasing intensity of light the reaction is correspondingly prolonged and also somewhat less regular.

⁵ Carbon arc reflecting lamp operating on 110 volts at 10 amperes.

TABLE 2.—*Time and intensity factors in the photochemical reaction of para-dimethyl-amino-benzaldehyde with ergot alkaloids*

Time of exposure	Per cent of standard			Time of exposure	Per cent of standard		
	15 cm.	30 cm.	60 cm.		15 cm.	30 cm.	60 cm.
5 minutes.....	66	35	0	40 minutes.....	-----	96	-----
10 minutes.....	78	48	20	45 minutes.....	-----	-----	64
15 minutes.....	86	53	30	60 minutes.....	-----	-----	83
20 minutes.....	100	-----	-----	80 minutes.....	-----	-----	82
25 minutes.....	-----	68	-----	90 minutes.....	-----	-----	88
30 minutes.....	-----	-----	38				

5. *The acid factor in the reaction.*—It will be recalled that the reagent is an M/60 solution of para-dimethyl-amino-benzaldehyde in concentrated sulphuric acid used in the proportion of 1 c. c. to 2 c. c. of the aqueous solution of the alkaloid. Many experiments were made to ascertain the effect of varying the aldehyde and acid constituents. The results showed that nothing would be gained by using larger amounts of aldehyde which, if used in excess of M/30 and M/15, imparts a brownish tinge to the solution, making accurate reading in the colorimeter somewhat more difficult. The acid factor on the other hand was found of considerable importance in determining the velocity of the reaction. Indeed the acid factor seems to stand in some mutual relationship with the light factor in determining the speed and completeness of the reaction. It may be stated at once that the optimum conditions are achieved with the use of 1 c. c. concentrated H_2SO_4 (containing 2.5 mg. of the aldehyde) to the alkaloidal salt in a volume of 2 c. c. of water or the alkaloid in 2 c. c. of 0.5 to 1 per cent aqueous solution of tartaric acid. Decreasing the quantity of acid reduces the velocity of the reaction, which, however, to a certain degree can be compensated for by increasing the intensity of the light or by lengthening the period of radiation.

The results of many experiments of this type are illustrated in Figure 2. In all of these experiments the amount of alkaloid was kept constant throughout at 0.1 mg. ergotamine tartrate; the total volume was kept constant being 3 c. c. in all cases; the quantity of aldehyde was constant, 2.5 mg., the variables being the amount of acid and the time and distance of radiation. The results plotted in curve A represent tubes radiated with the carbon arc lamp 25 minutes at 30 cm.; B, 15 minutes at about 20 cm.; and C, 40 minutes at 15 cm. It will thus be seen that the reaction may reach completion with as little as half, and probably less, of the optimum amount of acid, provided a good source of light of sufficient intensity can be had and sufficient time allowed for the photochemical reaction to reach

equilibrium. Stronger acidity than that indicated as optimal is prohibitive; for instead of a clear blue, various shades of brown develop which are utterly useless for colorimetric comparison. No experiments were made to ascertain whether other acids could be used in place of H_2SO_4 , with the exception of HCl , which if used in sufficient amount, was found to yield a reaction quite similar to that obtained with H_2SO_4 but less suitable on account of lack of stability. The color reaction as obtained with the reagent described herein is not subject to change through over irradiation, and it is permanent for many hours, with little if any change in 24 hours. The color reaction obtained with HCl seems to appear more rapidly and fades rather too rapidly to be useful for colorimetric comparison.

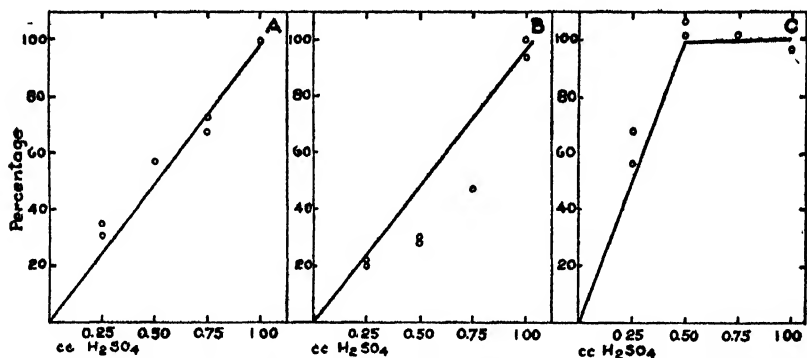


FIGURE 2.—Influence of acidity upon the photochemical reaction of para dimethyl amino benzaldehyde and ergotamine tartrate. In all cases 0.1 mg. ergotamine tartrate was used and 2.5 mg. of the reagent in a total volume of 3 c.c. All radiations were made with a carbon-arc lamp. A—Tubes radiated 25 minutes at 30 cm. from lamp; B—15 minutes at 20 cm.; C—40 minutes at 15 cm. from lamp

THE CHEMICAL REACTION AS APPLIED TO THE INDIVIDUAL ALKALOIDS OF ERGOT

After all the details of the reaction had been worked out so that quantitative results could be obtained with ergotamine tartrate,⁶ quantitative chemical tests were made in parallel with the bio-assay method of Broom and Clark (16) upon such other known ergot alkaloids as we have been able to procure. These included the following:

1. Ergotoxine phosphate of Burroughs Wellcome & Co., a very old specimen received in the laboratory in 1917.

⁶ I am indebted to the Sandoz Chemical Co. for a generous supply of crystalline ergotamine tartrate which has been used as a standard of reference in this and other work on ergot assay to be published elsewhere. The tartrate is stated to contain 84.5 per cent of the base.

2. Ergotoxine base, crystalline, contains 17.8 per cent benzene of crystallization.

3. Ergotoxine ethanesulphonate, crystalline, melting point 201° C. Contains 83.7 per cent ergotoxine base.

4. Ergotinine citrate, an amorphous preparation.⁷

The activity of these alkaloids as ascertained colorimetrically and compared with the biological method of Broom and Clark (16) is shown in Table 3.

TABLE 3.—*Comparison of colorimetric and biologic methods of assay as applied to the ergot alkaloids*

Alkaloid	Potency in per cent of ergotamine tartrate	
	Biologic method of Broom and Clark (16)	Colorimetric
Ergotamine tartrate.....	100	100
Ergotoxine phosphate.....	50	45
Ergotoxine base crystalline.....	125	104
Ergotoxine ethanesulphonate crystalline.....	110	96
Ergotinine citrate.....	15	12

Besides showing the quantitative relationship of the two methods, the results are of further interest in that they show the relative activity of ergotamine and ergotoxine. Dale and Spiro (4) concluded, on the basis of qualitative evidence, that the two alkaloids are identical pharmacologically. Quantitatively, Clark and Broom (24) reported ergotoxine to be about half as active as ergotamine, while Burn and Ellis (25) concluded that ergotamine bitartrate represents 85 per cent of the activity of ergotoxine phosphate, the difference apparently being accountable by the relative base content of the two salts. More recently Pattee and Nelson (26), working with a specimen of amorphous ergotinine Merck, and apparently assuming its identity with ergotoxine, concluded, after comparing its activity with ergotamine methanesulphonate, that 1 mg. ergotoxine is equal in activity to 1.33 mg. ergotamine.

Our results indicate that within the limits of experimental error there is no appreciable difference between the crystalline salts of ergotamine and ergotoxine. The alkaloidal content of the two salts is nearly the same, it being 84.5 per cent for ergotamine tartrate and 83.7 per cent for the ethanesulphonate of ergotoxine. The relatively high biologic activity of ergotoxine base is difficult to account for,

⁷ Thanks are due to Dr. C. S. Leonard, of Burroughs, Wellcome & Co., for a supply of the ergotoxine base ergotoxine ethanesulphonate and the ergotinine citrate. The last named product is an impure preparation of indefinite chemical composition.

since its alkaloidal content is only 82.2 per cent, 17.8 per cent being benzene of crystallization.

Very significant are the values obtained for the impure preparations ergotamine phosphate and ergotinine citrate. Both methods indicate decided inferiority in activity of these preparations as compared with the pure crystalline products.

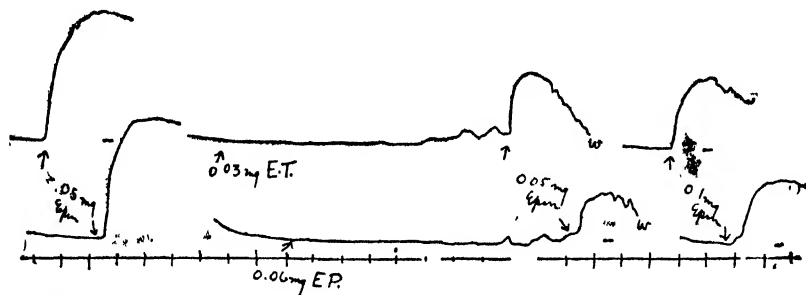


FIGURE 3.—Tracing 305. Segment of isolated rabbit uterus divided longitudinally into two equal strips, each suspended in 100 c.c. oxygenated Ringer-Locke solution at 38° C. After uniform and equivalent responses were obtained to 0.05 mg. epinephrine, 0.03 mg. ergotamine tartrate (E. T.) was added to the upper and 0.06 mg. ergotamine phosphate (E. P.) to the lower. In 10 minutes, without washing, 0.05 mg. epinephrine was added to each bath, showing a somewhat greater reversal in the lower strip. The solution was then washed, and the addition of 0.1 mg. epinephrine confirmed the first result, from which it may be concluded that 1 mg. ergotamine phosphate is somewhat greater in activity than 0.5 mg. ergotamine tartrate. Time is indicated in minutes

Figures 3 and 4 are given as illustrative of the experiments on the bio-assay of ergotamine phosphate. From Figure 3 it appears to be somewhat greater than 50 per cent, from Figure 4 somewhat less than 56 per cent; and by averaging up these with several similar experiments the value of 50 per cent was arrived at. Figure 5 represents

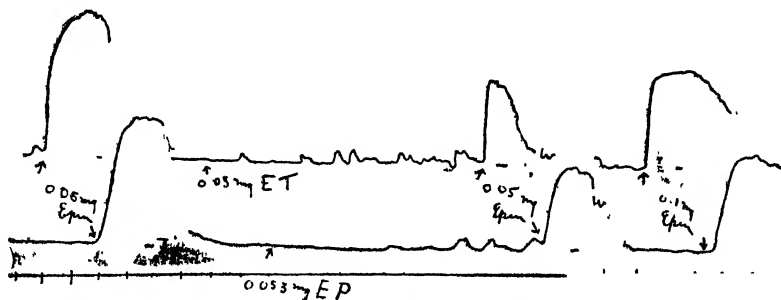


FIGURE 4.—Tracing 306. Conditions similar to those of Figure 3. The results of this experiment indicate that 1 mg. ergotamine phosphate is less in activity than 0.56 mg. ergotamine tartrate. Taken together with several other similar experiments, an approximate value of 50 per cent for ergotamine phosphate was obtained

one of several experiments carried out upon the assay of ergotinine citrate from which it appears to be approximately 15 per cent as active as ergotamine tartrate.

We may therefore conclude from these experiments that the colorimetric method as described herein when applied to the individual

alkaloids of ergot, whether to the pure and physiologically active ones or to the impure mixtures of inferior physiologic activity yields quantitative results which within the limits of experimental error are sufficiently close to the results obtained by the more difficult and time-consuming quantitative bio-assay method of Broom and Clark (16).

THE APPLICATION OF THE COLORIMETRIC METHOD IN THE ESTIMATION OF THE ALKALOIDAL CONTENT OF ERGOT

In order to measure the alkaloidal content of ergot colorimetrically it is necessary only to obtain the alkaloids quantitatively in an aqueous solution in such a degree of purity as to permit carrying out of the reaction without interference. For this purpose a definite volume of the fluid extract is carefully freed of its alcohol, the residue is suspended in water, made alkaline with ammonia, and the alkaloids are extracted with ether. The latter is washed free of yellow coloring matter and the alkaloids are extracted with an aqueous 1 per cent

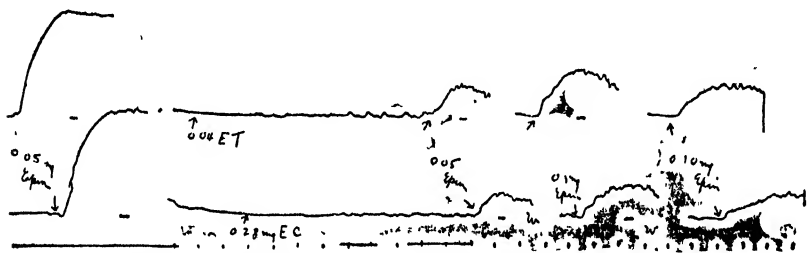


FIGURE 5.—Tracing 317 Shows one of the several experiments made to assay ergotinine citrate. A slightly greater though nearly equal degree of reversal was produced by 0.28 mg. ergotinine citrate (E. C.) than 0.04 mg. ergotamine tartrate (E. T.), thus showing that 1 mg. ergotinine citrate is somewhat more active than 0.14 mg. ergotamine tartrate. Averaging the results of several experiments, a value of 15 per cent was assigned to ergotinine citrate

tartaric acid solution. The latter, after being freed of ether, is made up to definite volume, and the alkaloids are determined colorimetrically. That such a procedure insures almost quantitative recovery of the alkaloids was shown by preliminary experiments with ergotamine and ergotoxine salts in aqueous solution or when added in definite amounts to a fluid extract of ergot of known alkaloidal content.

The method as applied to the fluid extract of ergot may now be described in detail.

Five c. c. of the fluid extract are evaporated on the water bath under a current of air or *in vacuo* to remove the alcohol. Excess heating should be avoided. The thick, sirupy residue is transferred quantitatively with the aid of about 50 c. c. H_2O to a separatory funnel. The aqueous suspension is rendered slightly alkaline with NH_4OH to distinct blue reaction with litmus. About 2 c. c. of 1:10 of concentrated NH_4OH will generally suffice. The solution is then extracted with four successive portions of ether, using 40 c. c. in the first, 25 c. c. in the second, and 15 to 20 c. c. in the third and fourth.

The ethers are then united, returned to the separatory funnel, and washed two or three times with about 25 c. c. H_2O and a few drops of NH_4OH . This treatment removes most of the yellow alkali soluble pigment which is present in greater or less amount in most ergots. One or two additional washings with water will remove the excess of alkali. The washed ether is made up to 100 c. c. and may be kept in this condition, if well stoppered and protected from light, for many weeks.

To complete the determination, 50 c. c. of the ether containing the alkaloids of 2.5 c. c. of the fluid extract of ergot are extracted in a separatory funnel three times with an aqueous 1 per cent tartaric acid solution, using 10, 10, and 5 c. c., respectively. The acid solution is freed from ether by evaporating it on the water bath under the electric fan to about 15 c. c., and this made up to volume. Unless the fluid extract is very low in alkaloids, this may be made up conveniently to 20 c. c., otherwise it may be necessary to concentrate further to a total volume of 10 c. c. The alkaloids are determined in this solution colorimetrically as described earlier in the paper for the individual ergot alkaloids.

The essential features of the method may best be illustrated by referring to some of the results obtained upon several fluid extracts of ergot.

Chemical assay of fluid extract No. 1.—Five c. c. of the fluid extract prepared as described above. Fifty c. c. of the ether extracted with 1 per cent aqueous solution of tartaric acid and made up to 20 c. c. One c. c. thereof or the equivalent of 0.125 c. c. of the fluid extract read in the colorimeter $\frac{15}{13.3}$ against 0.06 mg. ergotamine tartrate as standard or 0.067 mg. $\times 8 = 0.54$ mg. per c. c. A duplicate sample carried out in the same way and 2.0 c. c. of the solution, the equivalent of 0.25 c. c. of the fluid extract read in the colorimeter $\frac{15}{7.4}$ against the same standard, giving an equivalent of 0.1216 mg. ergotamine tartrate or 0.48 mg. per c. c. The same fluid extract standardized by the method of Broom and Clark with ergotamine tartrate as the standard showed an ergotamine tartrate equivalence of about 0.45 mg. per c. c. it having been greater than 0.40 and somewhat less than 0.50.

Fluid extract No. 2.—This extract yielded colorimetrically 0.49 mg. ergotamine tartrate per c. c., biologically approximately 0.45.

Fluid extract No. 3.—Fluid extract No. 3 contained too little alkaloid to be estimated with certainty colorimetrically, while biologically it contained approximately 0.08 mg. per c. c., a negligible amount.

Fluid extract No. 4.—This extract showed colorimetrically an ergotamine tartrate equivalent of 0.63 mg. per c. c., biologically 0.66 mg.

Fluid extract No. 5. No. 5 was another preparation of low potency, estimated biologically to contain 0.09 mg. ergotamine tartrate per c. c. It assayed colorimetrically at 0.10 mg.

It should be emphasized that unless the colorimetric reaction can be shown to be specific for the physiologically active alkaloids of ergot its application to the standardization of this drug must be deferred until further and more complete evidence is available to indicate the parallelism between values obtained by this method and the most reliable biological method. That the reagent is not specific for the ergot alkaloids is a certainty, for it is known to react with tryptophane with a blue color (27) (28) not unlike that of the ergot alkaloids. The reaction of the present reagent with tryptophane differs, however, in certain essential respects from that of the ergot alkaloids: First, the reaction is much slower; and, second, it is influenced favorably by oxidizing agents (28). Rhode (27), who studied the reaction of para-dimethyl-amino-benzaldehyde with tryptophane, suggested that the indol radical of tryptophane is probably the reacting group.

We have made experiments to ascertain whether tryptophane, indol, or skatol, when added to the fluid extract of ergot, could in any way affect the results, and obtained completely negative results. Under the conditions of the test as applied to the fluid extract of ergot, no tryptophane or skatol is recoverable by the solvents that are used in the extraction of the ergot alkaloids, and indol, which is partially recoverable, imparts a red tinge, masking to a slight extent the blue color of the alkaloids. None of the fluid extracts of ergot which we have examined, however, indicated anything suggestive of the presence of indol.

The colorimetric reaction is being applied to a large series of fluid extracts of ergot the physiologic activity of which is being determined simultaneously by the method of Broom and Clark. The results of this comparative study will be published in a forthcoming paper.

SUMMARY

A quantitative colorimetric test for the ergot alkaloids is described, based upon the reaction of Van Urk, wherein para-dimethyl-amino-benzaldehyde is used.

The results of some experiments on the photochemical nature of this reaction are presented.

Several ergot alkaloids of different physiologic activity were examined quantitatively by the colorimetric method with respect to ergotamine tartrate. The results of the chemical test corresponded well with the biological test.

The application of the colorimetric test to the estimation of the alkaloidal content of the fluid extract of ergot is described, and some of the results so obtained in comparison with the bio-assay method of Broom and Clark are cited.

ADDENDUM

Since this was written, samples of crystalline ergotinine and ergotaminine have become available through the kindness of Dr. E. Rothlin, of Basel, to whom I am greatly indebted. An examination of these alkaloids colorimetrically gave values of about 90 per cent as compared with ergotamine tartrate. When tested for physiologic activity by the method of Broom and Clark, the two alkaloids assayed at approximately one-tenth the activity of ergotamine tartrate. It appears from this experiment that the ergotinine citrate referred to in this paper was, as suspected, an impure preparation containing but a small amount of physiologically active alkaloid. It is also evident from this experiment that the colorimetric test described in this paper does not differentiate specifically the physiologically active alkaloids ergotoxine and ergotamine from the physiologically inactive isomers ergotinine and ergotaminine. Since it is not known to what extent, if any, the latter occur in ergot preformed or in the official fluid extract, the value of the present chemical method can be determined only by an exhaustive comparative study of the two methods as applied to a large series of fluid extracts. This evidence will be presented in a subsequent publication.

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COURT DECISIONS RELATING TO PUBLIC HEALTH

Milk ordinance upheld.—(Oklahoma Criminal Court of Appeals; *Grider v. City of Ardmore*, 287 P. 776; decided Jan. 25, 1930.) An ordinance of the city of Ardmore imposed an annual license fee of \$1 for each cow whose milk was distributed in the city. The plaintiff in error, who was engaged in the business of selling and distributing milk in the city, refused to pay the license fee and was convicted of selling milk without a license. He offered no evidence to show that the license fee was unreasonable. The criminal court of appeals sustained the conviction, saying:

Ordinance No. 528 of the city of Ardmore being within the police power of the city is constitutional and is a valid regulation of the business of producing and distributing milk in such city. The defendant having made no showing that the license fee required is unreasonable, the presumption is that such fee is reasonable and necessary for issuing such license and regulating such business.

Act relating to barbering upheld.—(North Carolina Supreme Court; *State v. Lockey*, 152 S. E. 693; decided Apr. 2, 1930.) The defendant was convicted of violating the law pertaining to barbering (Public Laws 1929, ch. 119) in that he performed the work of a barber without obtaining the certificate of registration required by the statute. On appeal to the supreme court the defendant contended that the act was unconstitutional, but the court decided against this contention. It was held that there was no unjust burden placed upon barbers and that there was no unreasonable classification because the act applied only to cities and towns of 2,000 or more population. The court also held that the act came under the police power of the State, and, with reference to the public health aspect, said in part:

* * * We think the regulations reasonable and the whole act in the interest of skill and proficiency, health and sanitation; and brings the barber and barber shop up to a high standard for the protection of the health of the public.

Other holdings were that the act applied to proprietor barbers and that the fees levied by the act were not so disproportioned to the expenses of enforcing the act as to affect its constitutionality.

DEATHS DURING WEEK ENDED JUNE 14, 1930

Summary of information received by telegraph from industrial insurance companies for the week ended June 14, 1930, and corresponding week of 1929. (From the Weekly Health Index, June 18, 1930, issued by the Bureau of the Census, Department of Commerce)

	Week ended June 14, 1930	Corresponding week, 1929
Policies in force.....	75, 764, 230	74, 333, 206
Number of death claims.....	14, 251	13, 958
Death claims per 1,000 policies in force, annual rate.....	9. 8	9. 8

Deaths from all causes in certain large cities of the United States during the week ended June 14, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index, June 18, 1930, issued by the Bureau of the Census, Department of Commerce)

City	Week ended June 14, 1930		Annual death rate per 1,000, corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended June 14, 1930 ¹
	Total deaths	Death rate ¹		Week ended June 14, 1930	Corresponding week, 1929	
Total (65 cities).....	6, 840	12 0	11. 9	504	598	51
Akron.....	45			2	4	18
Albany.....	33	14. 3	13. 0	2	4	44
Atlanta.....	76	15. 5	15. 5	13	13	137
White.....	43			3	7	95
Colored.....	33	(⁵)	(⁵)	10	0	159
Baltimore.....	161	10. 1	11. 9	5	18	17
White.....	112			2	13	9
Colored.....	49	(⁵)	(⁵)	3	5	49
Birmingham.....	84	19. 7	12. 7	11	7	103
White.....	37			7	3	108
Colored.....	47	(⁵)	(⁵)	4	4	95
Boston.....	188	12. 3	13. 5	17	28	48
Bridgeport.....	23			0	1	0
Buffalo.....	110	10. 3	12. 2	9	2	40
Cambridge.....	23	9. 5	9. 1	1	2	19
Camden.....	33	12. 7	7. 3	4	2	73
Canton.....	16	7. 1	7. 6	2	1	50
Chicago.....	677	11. 2	11. 0	58	63	51
Cincinnati.....	108			6	11	30
Cleveland.....	183	9. 4	10. 7	11	19	33
Columbus.....	80	14. 0	13. 8	7	7	68
Dallas.....	67	10. 0	12. 7	0	7	
White.....	52			4	5	
Colored.....	15	(⁵)	(⁵)	2	2	
Dayton.....	32	9. 0	9. 3	2	3	30
Denver.....	70	12. 4	12. 8	4	4	42
Des Moines.....	36	12. 4	8. 9	2	2	35
Detroit.....	292	11. 0	11. 5	37	50	57
Duluth.....	33	14. 7	7. 6	1	0	27
El Paso.....	31	13. 7	15. 9	7	11	
Erie.....	26			3	0	64
Fall River.....	19	7. 4	9. 3	1	5	23
Flint.....	20	7. 0	12. 6	3	5	35
Fort Worth.....	40	12. 2	11. 9	6	3	
White.....	33			4	2	
Colored.....	7	(⁵)	(⁵)	1	1	
Grand Rapids.....	26	8. 3	10. 5	2	1	30
Houston.....	85			15	5	
White.....	52			10	4	
Colored.....	33	(⁵)	(⁵)	5	1	
Indianapolis.....	113	15. 4	10. 6	4	5	30
White.....	88			3	5	26
Colored.....	25	(⁵)	(⁵)	1	0	54
Jersey City.....	62	10. 0	11. 1	6	5	52
Kansas City, Kans.....	25	11. 0	15. 4	3	2	71
White.....	18			2	2	53
Colored.....	7	(⁵)	(⁵)	1	0	217
Kansas City, Mo.....	90	12. 0	11. 2	6	5	47
Knoxville.....	18	8. 9	12. 4	1	5	23
White.....	12			0	5	0
Colored.....	6	(⁵)	(⁵)	1	0	247

Footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended June 14, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index, June 18, 1930, issued by the Bureau of the Census, Department of Commerce)—Continued

City	Week ended June 14, 1930		Annual death rate per 1,000, corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended June 14, 1930 ¹
	Total deaths	Death rate ¹		Week ended June 14, 1930	Corresponding week, 1929	
Los Angeles.....	252			20	21	61
Louisville.....	62	9.8	14.7	5	4	43
White.....	40			4	2	40
Colored.....	13	(²)	(²)	1	2	72
Lowell.....	19			3	2	71
Lynn.....	15	7.4	12.4	3	2	76
Memphis.....	80	21.9	14.8	7	4	83
White.....	35			2	4	55
Colored.....	45	(²)	(²)	4	0	135
Milwaukee.....	118	11.3	12.6	16	6	81
Minneapolis.....	103	11.8	9.8	7	3	45
Nashville.....	37	13.8	20.5	4	4	62
White.....	22			1	3	21
Colored.....	15	(²)	(²)	3	1	190
New Bedford.....	23			1	0	26
New Haven.....	36	10.0	8.0	5	4	97
New Orleans.....	145	17.6	19.1	9	16	52
White.....	87			6	7	53
Colored.....	58	(²)	(²)	3	9	50
New York.....	1,458	12.6	12.1	130	111	55
Bronx Borough.....	193	10.6	9.5	19	9	45
Brooklyn Borough.....	489	11.3	10.1	43	31	46
Manhattan Borough.....	587	17.5	17.9	53	60	87
Queens Borough.....	139	8.5	8.4	15	10	43
Richmond Borough.....	40	13.8	13.1	0	1	0
Newark.....	87	9.6	12.4	8	7	42
Oakland.....	67	12.7	12.4	3	4	36
Oklahoma City.....	45			10	4	196
Omaha.....	47	11.0	11.7	2	6	17
Pateron.....	37	13.3	11.5	1	0	17
Philadelphia.....	500	12.0	11.1	41	34	61
Pittsburgh.....	176	13.6	11.5	16	15	59
Portland, Oreg.....	59			7	1	86
Providence.....	51	9.3	10.0	2	7	18
Richmond.....	49	13.1	13.1	3	5	44
White.....	29			2	2	44
Colored.....	20	(²)	(²)	1	3	44
Rochester.....	64	10.2	12.7	4	6	35
St. Louis.....	205	12.6	13.9	14	14	45
St. Paul.....	67			5	1	61
Salt Lake City ⁴	34	12.8	12.5	4	4	63
San Antonio.....	91	21.8	20.1	25	13	
San Diego.....	42			1		21
San Francisco.....	146	13.0	13.7	5	7	34
Schenectady.....	16	8.9	8.9	0	2	0
Seattle.....	62	8.4	10.1	5	7	50
Somerville.....	13	6.6	6.6	2	1	65
Spokane.....	20	6.6	7.6	1	2	28
Springfield, Mass.....	28	9.7	13.2	2	5	32
Syracuse.....	47	12.3	13.0	4	2	60
Tacoma.....	29	13.7	12.3	1	0	26
Toledo.....	59	9.8	9.8	6	4	55
Trenton.....	30	11.3	14.3	0	3	0
Utica.....	29	14.5	15.5	4	3	114
Washington, D. C.....	146	13.8	10.4	13	9	75
White.....	88			2	4	17
Colored.....	58	(²)	(²)	11	5	165
Waterbury.....	22			5	2	128
Wilmington, Del.....	29	11.8	8.1	2	0	45
Worcester.....	36	9.5	9.2	4	1	52
Yonkers.....	17	7.3	9.5	4	2	96
Youngstown.....	33	9.9	8.1	2	3	31

¹ Annual rate per 1,000 population.

² Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.

³ Data for 73 cities.

⁴ Deaths for week ended Friday.

⁵ In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 20; Richmond, 32; and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended June 14, 1930, and June 15, 1929

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended June 14, 1930, and June 15, 1929

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended June 14, 1930	Week ended June 15, 1929	Week ended June 14, 1930	Week ended June 15, 1929	Week ended June 14, 1930	Week ended June 15, 1929	Week ended June 14, 1930	Week ended June 15, 1929
New England States:								
Maine.....	23	-----	2	-----	77	101	1	0
New Hampshire.....	1	3	-----	-----	27	72	0	0
Vermont.....	-----	-----	-----	-----	25	-----	0	0
Massachusetts.....	39	68	4	3	1,224	614	5	4
Rhode Island.....	-----	8	1	-----	29	28	0	0
Connecticut.....	20	16	1	2	41	154	3	2
Middle Atlantic States:								
New York.....	128	218	14	12	2,425	689	11	27
New Jersey.....	89	105	5	2	1,200	211	3	6
Pennsylvania.....	87	128	-----	-----	1,106	1,277	10	9
East North Central States:								
Ohio.....	46	50	12	13	651	1,118	6	12
Indiana.....	4	13	-----	-----	129	237	1	2
Illinois.....	153	173	33	23	404	1,340	8	13
Michigan.....	51	100	-----	4	728	650	22	75
Wisconsin.....	6	15	7	9	448	1,334	1	3
West North Central States:								
Minnesota.....	7	18	3	2	106	233	2	0
Iowa.....	4	6	-----	-----	87	46	1	0
Missouri.....	27	31	-----	3	40	73	3	13
North Dakota.....	3	8	-----	-----	17	56	1	3
South Dakota.....	3	-----	-----	-----	223	32	1	0
Nebraska.....	6	6	-----	-----	49	202	1	0
Kansas.....	14	4	2	2	333	681	2	2
South Atlantic States:								
Delaware.....	1	1	-----	-----	6	12	0	0
Maryland.....	19	21	9	8	26	53	0	1
District of Columbia.....	4	9	-----	-----	56	22	1	0
West Virginia.....	6	8	2	8	34	150	0	1
North Carolina.....	12	11	2	-----	74	7	0	4
South Carolina.....	9	8	174	221	70	-----	1	0
Georgia.....	4	5	10	26	92	17	2	1
Florida.....	5	5	1	4	82	19	0	0
East South Central States:								
Kentucky.....	-----	5	-----	-----	24	7	0	0
Tennessee.....	6	4	11	9	77	23	2	2
Alabama.....	5	8	11	13	107	22	0	0
Mississippi.....	8	5	-----	-----	-----	-----	3	1

¹ New York City only.

² Week ended Friday.

*Cases of certain communicable diseases reported by telegraph by State health officers
for weeks ended June 14, 1930, and June 15, 1929—Continued*

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended June 14, 1930	Week ended June 15, 1929	Week ended June 14, 1930	Week ended June 15, 1929	Week ended June 14, 1930	Week ended June 15, 1929	Week ended June 14, 1930	Week ended June 15, 1929
West South Central States:								
Arkansas.....		5	4	2	18	2	5	0
Louisiana.....	25	10	5	10	10	56	0	1
Oklahoma ¹	8	18	19	15	81	50	3	0
Texas.....	13	27	23	5	103	126	0	2
Mountain States:								
Montana.....		1			25	30	0	2
Idaho.....				4	4	47	0	1
Wyoming.....					51	22	0	0
Colorado.....	7	8			320	21	3	0
New Mexico.....	8	3			43	7	1	0
Arizona.....		1			75	4	0	0
Utah ¹		1		2	192	2	1	3
Pacific States:								
Washington.....	1	7			516	127	4	3
Oregon.....	4	7	6	9	95	130	0	0
California.....	44	39	13	18	1,470	111	4	9
Division and State	Polomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended June 14, 1930	Week ended June 15, 1929	Week ended June 14, 1930	Week ended June 15, 1929	Week ended June 14, 1930	Week ended June 15, 1929	Week ended June 14, 1930	Week ended June 15, 1929
New England States:								
Maine.....	0	1	10	17	0	0	6	3
New Hampshire.....	0	0	8	22	0	0	0	0
Vermont.....	0	0	8	1	0	0	0	0
Massachusetts.....	0	1	150	181	0	4	2	8
Rhode Island.....	0	0	11	4	0	0	1	2
Connecticut.....	2	0	43	40	0	0	0	0
Middle Atlantic States:								
New York.....	2	5	287	297	5	0	18	10
New Jersey.....	0	1	144	107	0	0	6	4
Pennsylvania.....	2	1	270	242	0	0	13	14
East North Central States:								
Ohio.....	3	2	252	117	119	30	11	5
Indiana.....	0	0	75	93	106	70	3	2
Illinois.....	1	0	325	302	90	108	10	10
Michigan.....	1	0	215	290	41	94	4	4
Wisconsin.....	1	0	126	132	17	15	2	2
West North Central States:								
Minnesota.....	2	1	61	57	8	1	1	3
Iowa.....	0	1	35	59	147	36	1	1
Missouri.....	0	0	94	45	44	17	10	9
North Dakota.....	0	1	20	17	20	6	1	0
South Dakota.....	1	0	5	8	21	25	0	0
Nebraska.....	0	1	13	35	39	37	1	1
Kansas.....	1	1	52	53	98	67	8	5
South Atlantic States:								
Delaware.....	0	0	5	4	0	0	0	0
Maryland ¹	0	0	65	89	0	0	7	10
District of Columbia.....	0	1	16	0	0	0	0	1
West Virginia.....	0	1	24	16	10	13	25	90
North Carolina.....	2	3	21	13	13	5	27	24
South Carolina.....	1	0	4	5	0	6	73	65
Georgia.....	0	0	10	12	0	0	17	30
Florida.....	0	0	3	0	1	0	7	6
East South Central States:								
Kentucky.....	0	0	27	81	5	20	4	0
Tennessee.....	0	1	15	17	11	2	21	10
Alabama.....	0	2	6	8	2	0	12	26
Mississippi.....	0	0	1	7	2	0	23	21

¹ Week ended Friday.

¹ Figures for 1930 are exclusive of Oklahoma City and Tulsa, and for 1929 are exclusive of Tulsa only.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended June 14, 1930, and June 15, 1929—Continued

Division and State	Polio-myelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended June 14, 1930	Week ended June 15, 1929	Week ended June 14, 1930	Week ended June 15, 1929	Week ended June 14, 1930	Week ended June 15, 1929	Week ended June 14, 1930	Week ended June 15, 1929
West South Central States:								
Arkansas.....	0	0	1	7	5	2	4	12
Louisiana.....	11	0	6	27	3	2	43	18
Oklahoma ¹	3	1	21	29	99	78	8	17
Texas.....	1	0	13	54	32	67	5	17
Mountain States:								
Montana.....	0	1	15	10	3	2	0	1
Idaho.....	0	0	3	1	0	8	0	3
Wyoming.....	0	0	4	4	20	15	1	0
Colorado.....	0	0	10	16	8	13	2	1
New Mexico.....	0	0	3	1	2	7	2	3
Arizona.....	0	0	1	0	1	1	4	5
Utah ¹	0	0	0	5	1	5	0	0
Pacific States:								
Washington.....	0	0	26	11	30	42	3	7
Oregon.....	0	0	15	10	16	16	6	3
California.....	36	4	112	326	31	45	16	7

¹ Week ended Friday

² Figures for 1930 are exclusive of Oklahoma City and Tulsa, and for 1929 are exclusive of Tulsa only.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Menin- gococ- cus menin- gitis	Diph- theria	Infl- uenza	Ma- laria	Mea- sles	Pel- lagra	Polio- mye- litis	Scarlet fever	Small- pox	Ty- phoid fever
<i>April, 1930</i>										
Mississippi.....	54	42	2,351	4,584	789	1,142	1	47	123	68
Washington.....	33	33	61	1	2,081		1	150	362	8
<i>May, 1930</i>										
Arizona.....	12	12	29	2	761		6	58	52	15
Dist. of Columbia.....	1	36	1		229	1	0	55	0	0
Georgia.....	9	23	117	393	1,000	144	0	65	7	45
New Hampshire.....		5	6					61		
New Jersey.....	23	379	30	2	5,564		1	853	1	11
North Dakota.....	10	19	2		74		2	80	145	3
Porto Rico.....		34	63	493	116	5	1		0	89
Tennessee.....	72	27	137	279	1,180	33	1	215	83	56

<i>April, 1930</i>		<i>Cases</i>	
Chicken pox:			
Mississippi.....	984		
Washington.....	464		
Dengue:			
Mississippi.....	9		
Dysentery:			
Mississippi (amebic).....	40		
Mississippi (bacillary).....	575		
German measles:			
Washington.....	231		
Hookworm disease:			
Mississippi.....	269		
Impetigo contagiosa:			
Washington.....	1		
Lothargic encephalitis.			<i>Cases</i>
Washington.....			1
Mumps:			
Mississippi.....			998
Washington.....			513
Ophthalmia neonatorum:			
Mississippi.....			15
Puerperal septicemia:			
Mississippi.....			44
Washington.....			7
Rabies in animals:			
Mississippi.....			3
Rocky Mountain spotted or tick fever:			
Washington.....			1

Trachoma:	Cases	Mumps—Continued.	Cases
Mississippi.....	15	North Dakota.....	198
Undulant fever:		Porto Rico.....	4
Washington.....	1	Tennessee.....	102
Vincent's angina:		Ophthalmia neonatorum:	
Washington.....	184	New Jersey.....	3
Whooping cough:		Porto Rico.....	2
Mississippi.....	1,700	Paratyphoid fever:	
Washington.....	510	Georgia.....	2
		Tennessee.....	3
		Puerperal fever:	
		Porto Rico.....	8
		Septic sore throat:	
		Georgia.....	47
		Tennessee.....	3
		Tetanus:	
		Georgia.....	2
		Porto Rico.....	32
		Tetanus, infantile:	
		Porto Rico.....	14
		Trachoma.	
		Arizona.....	12
		Porto Rico.....	1
		Tularaemia:	
		North Dakota.....	1
		Tennessee.....	1
		Typhus fever:	
		District of Columbia.....	1
		Georgia.....	2
		Undulant fever:	
		Arizona.....	1
		North Dakota.....	1
		Vincent's angina:	
		North Dakota.....	32
		Whooping cough:	
		Arizona.....	70
		District of Columbia.....	21
		Georgia.....	208
		New Jersey.....	342
		North Dakota.....	116
		Porto Rico.....	190
		Tennessee.....	119

May, 1930

Chicken pox:	
Arizona.....	78
District of Columbia.....	122
Georgia.....	129
New Jersey.....	721
North Dakota.....	42
Tennessee.....	167
Colibacillosis:	
Porto Rico.....	8
Conjunctivitis:	
Georgia.....	1
Dysentery:	
Arizona.....	19
Georgia.....	195
Porto Rico.....	17
Tennessee.....	28
Filariasis	
Porto Rico.....	0
German measles:	
New Jersey.....	989
Hookworm, disease	
Georgia.....	79
Lead poisoning:	
New Jersey.....	7
Leprosy:	
Porto Rico.....	1
Lethargic encephalitis.	
Tennessee.....	1
Mumps:	
Arizona.....	103
Georgia.....	242

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 96 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 32,125,000. The estimated population of the 89 cities reporting deaths is more than 30,535,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended June 7, 1930, and June 8, 1929

	1930	1929	Estimated expectancy
<i>Cases reported</i>			
Diphtheria:			
46 States.....	950	1,151	-----
96 cities.....	471	667	760
Measles:			
45 States.....	15,300	12,467	-----
96 cities.....	5,869	4,458	-----
Meningococcus meningitis:			
46 States.....	126	229	-----
96 cities.....	64	107	-----
Poliomyelitis:			
47 States.....	52	29	-----
Scarlet fever:			
46 States.....	2,892	3,287	-----
96 cities.....	1,313	1,267	965
Smallpox:			
46 States.....	1,062	948	-----
96 cities.....	121	50	58
Typhoid fever:			
40 States.....	343	431	-----
96 cities.....	51	47	58
<i>Deaths reported</i>			
Influenza and pneumonia: 89 cities.....	533	561	-----
Smallpox: 89 cities.....	0	0	-----

City reports for week ended June 7, 1930

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during non-epidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1921 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND								
Maine:								
Portland.....	14	1	0	-----	0	3	32	1
New Hampshire:								
Concord.....	0	0	0	-----	0	1	0	1
Nashua.....	0	0	0	-----	0	6	0	0
Vermont:								
Barre.....	0	0	0	-----	0	12	0	0
Burlington.....	1	0	0	-----	0	0	0	0
Massachusetts:								
Boston.....	48	35	27	1	0	443	46	18
Fall River.....	0	3	2	-----	0	2	4	0
Springfield.....	9	2	4	-----	0	2	3	1
Worcester.....	17	3	1	-----	0	176	1	0
Rhode Island:								
Pawtucket.....	11	0	0	-----	0	3	0	1
Providence.....	20	5	4	-----	0	4	1	4
Connecticut:								
Bridgeport.....	1	5	0	-----	0	0	0	3
Hartford.....	6	4	1	2	0	1	0	3
New Haven.....	20	1	0	-----	0	13	10	1

City reports for week ended June 7, 1930—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneu- monia, deaths reported
		Cases, estimated expect- ancy	Cases reported	Cases reported	Deaths reported			
MIDDLE ATLANTIC								
New York:								
Buffalo.....	18	10	8	-----	0	16	15	20
New York.....	202	245	91	8	5	1,554	137	138
Rochester.....	16	8	1	-----	0	23	6	2
Syracuse.....	32	4	0	-----	0	25	32	2
New Jersey:								
Camden.....	3	6	5	-----	0	7	1	2
Newark.....	11	12	23	2	0	159	12	4
Trenton.....	3	3	3	-----	0	10	0	2
Pennsylvania:								
Philadelphia.....	100	53	10	4	4	300	98	26
Pittsburgh.....	31	14	14	-----	0	157	10	23
Reading.....	3	2	1	-----	0	1	7	2
EAST NORTH CENTRAL								
Ohio:								
Cincinnati.....	6	5	4	-----	0	60	12	0
Cleveland.....	117	23	6	1	2	15	49	12
Columbus.....	34	3	2	-----	0	64	0	3
Toledo.....	33	4	2	1	1	43	32	5
Indiana:								
Fort Wayne.....	0	1	1	-----	0	0	0	0
Indianapolis.....	28	3	1	-----	0	34	3	10
South Bend.....	0	1	2	-----	1	0	0	2
Terre Haute.....	1	0	0	-----	0	58	0	0
Illinois:								
Chicago.....	75	82	123	3	3	26	82	34
Springfield.....	0	1	0	-----	0	38	0	0
Michigan:								
Detroit.....	50	41	32	2	1	327	41	20
Flint.....	4	2	1	-----	0	156	1	5
Grand Rapids.....	3	1	0	-----	0	3	0	1
Wisconsin:								
Kenosha.....	1	0	0	-----	0	2	0	2
Madison.....	5	0	0	-----	-----	39	2	-----
Milwaukee.....	122	12	8	-----	0	21	114	4
Racine.....	1	1	0	-----	0	21	0	0
Superior.....	3	0	0	-----	0	0	0	0
WEST NORTH CENTRAL								
Minnesota:								
Duluth.....	4	0	0	-----	0	27	0	0
Minneapolis.....	69	13	2	-----	2	34	47	5
St. Paul.....	34	7	0	-----	1	3	8	3
Iowa:								
Davenport.....	0	1	0	-----	-----	4	0	-----
Des Moines.....	1	1	0	-----	-----	2	0	-----
Sioux City.....	0	0	1	-----	-----	9	0	-----
Waterloo.....	9	0	0	-----	-----	2	1	-----
Missouri:								
Kansas City.....	18	3	1	-----	1	1	1	6
St. Joseph.....	1	0	0	-----	0	0	0	0
St. Louis.....	28	28	21	-----	-----	60	15	18
North Dakota:								
Fargo.....	2	0	0	-----	0	1	16	3
Grand Forks.....	0	0	0	-----	-----	0	0	-----
South Dakota:								
Aberdeen.....	7	0	0	-----	-----	135	1	-----
Sioux Falls.....	0	0	0	-----	-----	0	0	-----
Nebraska:								
Lincoln.....	22	1	0	-----	0	0	6	1
Omaha.....	9	2	2	-----	0	35	0	6
Kansas:								
Topeka.....	5	0	0	-----	0	40	6	1
Wichita.....	0	1	0	-----	0	5	1	2

City reports for week ended June 7, 1930—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneu- monia, deaths reported
		Cases, estimated expect- ancy	Cases reported	Cases reported	Deaths reported			
SOUTH ATLANTIC								
Delaware:								
Wilmington.....	2	1	1	-----	0	1	0	2
Maryland:								
Baltimore.....	87	19	9	2	1	17	16	15
Cumberland.....	4	0	1	1	0	0	0	0
Frederick.....	0	0	0	-----	0	0	0	1
District of Columbia:								
Washington.....	25	8	11	2	1	79	0	8
Virginia:								
Lynchburg.....	7	1	1	-----	0	15	5	0
Norfolk.....	25	0	0	-----	0	6	9	1
Richmond.....	2	1	2	-----	0	4	0	4
Roanoke.....	2	0	0	-----	0	52	0	0
West Virginia:								
Charleston.....	3	0	0	1	0	2	1	2
Wheeling.....	7	0	0	-----	0	5	0	1
North Carolina:								
Raleigh.....	1	0	1	-----	0	0	0	0
Wilmington.....	0	0	0	-----	0	0	0	1
Winston-Salem.....	2	0	0	1	0	0	3	1
South Carolina:								
Charleston.....	0	0	0	6	0	1	0	2
Columbia.....	2	0	0	-----	0	0	1	1
Georgia:								
Atlanta.....	3	1	1	8	1	23	0	11
Brunswick.....	0	0	0	-----	0	2	0	1
Savannah.....	1	0	0	1	1	6	0	1
Florida:								
Miami.....	2	2	0	-----	0	6	1	2
St. Petersburg.....	-----	0	-----	-----	5	-----	-----	0
Tampa.....	0	0	0	-----	1	54	2	0
EAST SOUTH CENTRAL								
Kentucky:								
Covington.....	0	0	1	-----	0	1	0	1
Tennessee:								
Memphis.....	5	1	1	-----	0	1	1	0
Nashville.....	2	0	0	-----	0	28	0	1
Alabama:								
Birmingham.....	3	1	0	3	0	30	0	8
Mobile.....	0	1	0	-----	2	1	0	1
Montgomery.....	0	0	0	-----	-----	1	0	-----
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith.....	0	0	0	-----	-----	12	0	-----
Little Rock.....	0	0	0	-----	0	4	0	0
Louisiana:								
New Orleans.....	1	6	1	1	1	3	0	11
Shreveport.....	0	1	0	-----	0	0	1	0
Oklahoma:								
Oklahoma City.....	2	0	0	3	0	10	1	10
Tulsa.....	2	0	0	-----	-----	5	1	-----
Texas:								
Dallas.....	2	2	1	-----	0	11	4	1
Fort Worth.....	0	1	0	-----	0	11	0	3
Galveston.....	0	0	1	-----	0	0	0	4
Houston.....	0	2	7	-----	1	3	0	1
San Antonio.....	0	2	1	-----	1	0	0	5
MOUNTAIN								
Montana:								
Billings.....	0	0	0	-----	0	25	0	2
Great Falls.....	3	0	0	-----	0	2	5	1
Helena.....	0	0	0	-----	0	2	7	1
Missoula.....	0	0	0	-----	0	5	0	0
Idaho:								
Boise.....	-----	1	-----	-----	-----	-----	-----	-----
Colorado:								
Denver.....	15	8	2	-----	1	335	12	6
Pueblo.....	7	1	0	-----	0	67	31	1

City reports for week ended June 7, 1930—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
MOUNTAIN—contd.								
New Mexico:								
Albuquerque.....	4	0	0	-----	0	8	2	0
Arizona:								
Phoenix.....	0	1	2	-----	0	1	1	4
Utah:								
Salt Lake City....	9	4	0	-----	0	183	3	1
Nevada:								
Reno.....	-----	0	-----	-----	-----	-----	-----	-----
PACIFIC								
Washington:								
Seattle.....	46	3	0	-----	-----	279	113	-----
Spokane.....	12	2	1	-----	-----	9	0	-----
Tacoma.....	1	1	2	-----	0	201	3	0
Oregon:								
Portland.....	17	6	3	-----	0	22	14	5
Salem.....	11	0	1	-----	-----	1	2	-----
California:								
Los Angeles.....	57	31	17	7	0	365	54	10
Sacramento.....	4	3	1	-----	0	23	36	2
San Francisco.....	32	14	11	5	1	63	43	1

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
NEW ENGLAND											
Maine:											
Portland	2	0	0	0	0	0	0	0	0	10	20
New Hampshire:											
Concord	1	0	0	0	0	0	0	0	0	0	12
Nashua	1	0	0	0	0	0	0	0	0	0	-----
Vermont:											
Barre	0	1	0	0	0	2	0	0	0	0	7
Burlington	0	0	0	0	0	0	0	0	0	0	14
Massachusetts:											
Boston	53	58	0	0	0	9	1	2	0	46	200
Fall River	3	4	0	0	0	3	0	0	0	1	24
Springfield	6	1	0	0	0	1	0	0	0	7	43
Worcester	6	12	0	0	0	0	1	0	0	10	45
Rhode Island:											
Pawtucket	1	2	0	0	0	1	0	0	0	7	-----
Providence	7	17	0	0	0	2	0	0	1	5	54
Connecticut:											
Bridgeport	8	3	0	0	0	0	0	0	0	0	23
Hartford	3	2	0	0	0	8	1	0	0	2	39
New Haven	3	4	0	0	0	4	0	0	0	6	31
MIDDLE ATLANTIC											
New York:											
Buffalo	22	24	0	0	0	6	0	0	0	16	146
New York	199	180	0	0	0	95	10	12	0	88	1,481
Rochester	8	17	0	0	0	4	1	0	0	3	83
Syracuse	7	12	0	2	0	2	0	0	0	33	67
New Jersey:											
Camden	5	12	0	0	0	0	0	0	0	0	37
Newark	21	18	0	0	0	16	1	0	0	12	116
Trenton	2	8	0	0	0	8	0	0	0	1	65
Pennsylvania:											
Philadelphia	76	117	1	0	0	33	2	1	1	13	416
Pittsburgh	28	18	0	0	0	11	1	0	0	34	175
Reading	3	4	0	0	0	2	0	0	0	8	36

City reports for week ended June 7, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
EAST NORTH CENTRAL											
Ohio:											
Cincinnati.....	11	15	2	2	0	12	1	0	0	6	168
Cleveland.....	33	48	1	0	0	24	0	2	1	63	220
Columbus.....	6	3	1	1	0	4	0	0	0	2	87
Toledo.....	8	17	1	5	0	5	0	0	0	2	77
Indiana:											
Fort Wayne.....	2	4	2	0	0	0	0	1	0	0	25
Indianapolis....	9	13	6	8	0	2	1	0	0	4	—
South Bend.....	2	4	1	0	0	1	0	0	0	0	17
Terre Haute....	1	3	0	0	0	0	0	0	0	0	18
Illinois:											
Chicago.....	93	220	2	0	0	49	2	1	0	72	724
Springfield....	3	3	1	0	0	0	0	1	0	8	10
Michigan:											
Detroit.....	78	97	1	0	0	28	2	1	0	110	320
Flint.....	7	14	1	1	0	1	0	1	0	18	40
Grand Rapids...	5	13	0	0	0	2	0	0	0	1	39
Wisconsin:											
Kenosha.....	0	3	0	1	0	0	0	0	0	2	11
Madison.....	1	14	1	0	—	0	0	0	—	30	—
Milwaukee.....	21	29	0	0	—	6	0	0	—	56	—
Racine.....	3	1	0	0	0	1	0	0	0	4	14
Superior.....	2	3	0	0	0	0	0	0	0	0	11
WEST NORTH CENTRAL											
Minnesota:											
Duluth.....	6	3	0	0	0	0	0	0	1	5	27
Minneapolis....	27	20	2	0	0	2	1	0	0	3	93
St. Paul.....	18	5	0	0	0	4	0	1	0	12	59
Iowa:											
Davenport.....	0	0	1	49	—	—	0	0	—	0	—
Des Moines.....	5	3	2	29	—	—	0	0	—	0	38
Sioux City.....	1	5	0	3	—	—	0	0	—	2	—
Waterloo.....	2	0	0	10	—	—	0	0	—	1	—
Missouri:											
Kansas City....	7	11	0	0	0	10	0	0	0	10	—
St. Joseph.....	0	8	1	4	0	1	0	1	0	0	19
St. Louis.....	20	77	0	8	0	6	2	2	0	16	229
North Dakota:											
Fargo.....	1	0	0	8	0	1	0	0	0	7	12
Grand Forks....	0	0	0	2	—	—	0	0	—	0	—
South Dakota:											
Aberdeen.....	1	0	0	3	—	—	0	0	—	9	—
Sioux Falls.....	0	0	0	15	—	—	0	0	—	0	10
Nebraska:											
Lincoln.....	1	4	1	4	0	0	0	0	0	6	11
Omaha.....	3	6	2	25	0	2	0	0	0	1	54
Kansas:											
Topeka.....	2	1	0	1	0	0	0	1	0	8	12
Wichita.....	2	1	1	2	0	1	1	0	0	0	33
SOUTH ATLANTIC											
Delaware:											
Wilmington....	3	4	1	0	0	0	0	1	1	5	35
Maryland:											
Baltimore.....	25	55	0	0	0	20	2	2	0	30	222
Cumberland.....	0	0	0	0	0	0	0	0	0	4	3
Frederick.....	0	0	0	0	0	0	0	0	0	0	8
District of Colum- bia:											
Washington....	16	4	1	0	0	12	1	3	0	3	151
Virginia:											
Lynchburg.....	0	0	0	0	0	0	0	1	0	6	9
Norfolk.....	1	1	0	0	0	2	0	3	0	1	—
Richmond.....	2	3	0	0	0	6	1	1	1	1	53
Roanoke.....	0	0	0	0	0	1	0	0	0	0	16
West Virginia:											
Charleston.....	0	0	0	1	0	0	0	0	0	0	12
Wheeling.....	2	0	0	0	0	0	1	0	0	8	16
North Carolina:											
Raleigh.....	0	0	1	1	0	0	0	0	0	1	13
Wilmington....	0	0	1	0	0	2	0	0	1	0	12
Winston-Salem...	1	1	1	0	0	3	0	1	0	1	23

City reports for week ended June 7, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
SOUTH ATLANTIC— continued											
South Carolina:											
Charleston.....	0	0	1	0	0	3	1	0	0	10	23
Columbia.....	0	0	0	0	0	1	2	0	0	2	13
Georgia											
Atlanta.....	3	16	4	0	0	5	1	1	1	6	107
Brunswick.....	0	0	0	0	0	1	0	0	0	0	6
Savannah.....	0	1	0	0	0	4	2	1	1	0	43
Florida:											
Miami.....	0	0	0	0	0	4	0	0	0	0	27
St. Petersburg.....	0	0	0	0	0	0	0	0	0	0	13
Tampa.....	0	1	0	0	0	2	1	0	0	0	20
EAST SOUTH CENTRAL											
Kentucky:											
Covington.....	1	2	0	0	0	2	0	0	0	0	20
Tennessee											
Memphis.....	3	8	1	0	0	0	2	2	0	11	—
Nashville.....	1	3	1	5	0	2	1	0	1	1	39
Alabama											
Birmingham.....	1	3	3	0	0	6	2	0	0	10	68
Mobile.....	0	0	1	0	0	3	1	0	1	0	26
Montgomery.....	0	0	1	0	—	—	0	0	—	4	—
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith.....	0	1	0	0	—	—	0	0	—	4	—
Little Rock.....	1	0	0	0	0	3	1	2	0	0	—
Louisiana											
New Orleans.....	4	13	0	0	0	19	2	4	2	6	103
Shreveport.....	0	0	0	1	0	1	1	0	0	0	32
Oklahoma											
Oklahoma City.....	1	10	2	8	0	4	1	0	0	20	59
Tulsa.....	1	3	1	6	—	—	1	0	—	11	—
Texas											
Dallas.....	2	4	2	1	0	4	1	0	0	6	56
Fort Worth.....	2	1	1	1	0	2	0	1	0	0	40
Galveston.....	0	0	0	0	0	1	0	0	0	0	18
Houston.....	1	1	0	2	0	5	1	3	1	0	55
San Antonio.....	1	2	0	2	0	5	1	1	0	0	97
MOUNTAIN											
Montana											
Billings.....	1	1	0	0	0	0	0	0	0	0	5
Great Falls.....	1	7	1	1	0	0	0	0	0	0	10
Helena.....	0	2	0	0	0	0	0	0	0	14	3
Missoula.....	0	0	0	0	0	0	0	0	0	0	7
Idaho:											
Boise.....	0	—	0	—	—	—	0	—	—	—	—
Colorado											
Denver.....	8	3	0	0	0	6	0	0	0	56	83
Pueblo.....	1	0	0	1	0	0	0	0	0	0	12
New Mexico:											
Albuquerque.....	0	0	0	0	0	14	0	0	0	0	22
Arizona:											
Phoenix.....	0	0	0	0	0	2	0	2	0	0	—
Utah:											
Salt Lake City.....	2	8	1	1	0	3	0	0	0	41	39
Nevada:											
Reno.....	0	—	0	—	—	—	0	—	—	—	—
PACIFIC											
Washington:											
Seattle.....	6	8	1	9	—	—	1	0	—	25	—
Spokane.....	4	0	4	8	—	—	0	0	—	11	—
Tacoma.....	3	0	2	0	0	0	0	1	0	9	21
Oregon:											
Portland.....	4	2	7	10	0	0	0	2	0	5	82
Salem.....	1	1	1	0	0	0	0	0	0	2	—
California:											
Los Angeles.....	25	14	4	7	0	42	2	0	1	48	329
Sacramento.....	2	4	0	4	0	6	1	0	0	0	19
San Francisco.....	16	20	1	1	0	13	1	0	0	0	152

City reports for week ended June 7, 1930—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Polioomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Maine:									
Portland.....	1	1	0	0	0	0	0	0	0
Massachusetts:									
Boston.....	1	1	0	0	2	0	0	0	0
MIDDLE ATLANTIC									
New York:									
New York City ¹	7	4	2	6	0	0	1	0	0
New Jersey:									
Newark.....	2	1	0	0	0	0	0	0	0
Pennsylvania:									
Philadelphia.....	1	0	0	0	0	1	0	0	0
Pittsburgh.....	2	1	0	0	0	0	0	0	0
EAST NORTH CENTRAL									
Ohio:									
Cleveland.....	2	1	0	0	0	0	0	0	0
Indiana:									
Indianapolis.....	1	1	0	0	0	0	0	0	0
South Bend.....	1	0	0	0	0	0	0	0	0
Terre Haute.....	0	1	0	0	0	0	0	0	0
Illinois:									
Chicago.....	6	2	2	0	0	0	0	0	0
Michigan:									
Detroit.....	10	9	2	0	0	0	0	1	0
Flint.....	2	1	0	0	0	0	0	0	0
Wisconsin:									
Madison.....	1		2		0		0	0	
Milwaukee.....	1	0	0	0	0	0	0	1	0
WEST NORTH CENTRAL									
Iowa:									
Sioux City.....	1	0	0	0	0	0	0	0	0
Missouri:									
Kansas City.....	1	1	0	0	1	0	0	0	0
St. Louis.....	3	2	0	0	0	0	0	0	0
SOUTH ATLANTIC²									
Virginia:									
Norfolk.....	1	0	0	0	0	0	0	0	0
Roanoke.....	0	0	0	0	0	2	0	0	0
South Carolina:									
Charleston ¹	0	0	0	0	11	0	0	0	0
Georgia:									
Atlanta.....	1	1	0	0	1	0	0	0	0
Savannah.....	0	0	0	0	0	1	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis.....	3	0	0	0	0	0	0	0	0
Nashville.....	1	1	0	0	0	0	0	0	0
Alabama:									
Birmingham.....	2	0	0	0	0	0	0	1	0
Montgomery.....	0	0	0	0	1	0	0	0	0
WEST SOUTH CENTRAL									
Louisiana:									
New Orleans.....	1	1	0	0	2	1	0	0	0
Shreveport.....	0	0	0	0	0	0	0	1	0
Oklahoma:									
Oklahoma City.....	0	1	0	0	0	0	0	0	1
Texas:									
Dallas.....	0	0	0	0	0	2	0	0	0
Fort Worth.....	0	0	0	0	0	1	0	0	0
Houston.....	0	0	0	0	0	1	0	0	0

¹ Typhus fever. 1 case at New York City, N. Y.² Dengue, 2 cases: 1 case at Charleston, S. C., and 1 case at St. Petersburg, Fla.

City reports for week ended June 7, 1930—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
MOUNTAIN									
Colorado:									
Pueblo.....	1	1	0	0	0	0	0	0	0
Utah:									
Salt Lake City.....	2	1	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle.....	1	0	0	0	0	0	0	0	0
California:									
Los Angeles.....	2	0	0	0	0	0	0	7	0
San Francisco.....	1	0	0	0	0	0	0	1	0

The following table gives the rates per 100,000 population for 98 cities for the 5-week period ended June 7, 1930, compared with those for a like period ended June 8, 1929. The population figures used in computing the rates are approximate estimates, authoritative figures for many of the cities not being available. The 98 cities reporting cases have an estimated aggregate population of more than 32,000,000. The 91 cities reporting deaths have more than 30,500,000 estimated population.

Summary of weekly reports from cities, May 4 to June 7, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929¹

DIPHTHERIA CASE RATES

	Week ended—									
	May 10, 1930	May 11, 1929	May 17, 1930	May 18, 1929	May 24, 1930	May 25, 1929	May 31, 1930	June 1, 1929	June 7, 1930	June 8, 1929
98 cities.....	79	139	76	124	81	135	77	124	76	110
New England.....	60	118	97	94	62	108	51	90	86	72
Middle Atlantic.....	89	206	78	159	80	188	71	168	72	148
East North Central.....	104	145	91	143	117	165	111	155	113	123
West North Central.....	44	104	72	123	70	100	76	110	51	96
South Atlantic.....	57	64	49	62	49	49	55	41	49	54
East South Central.....	7	27	40	27	27	14	40	7	13	21
West South Central.....	78	88	71	110	56	46	52	57	41	88
Mountain.....	69	52	34	26	51	61	43	35	18	61
Pacific.....	57	39	50	56	69	60	78	58	76	56

MEASLES CASE RATES

	1,443	894	1,285	890	1,185	903	932	659	1,952	734
98 cities.....										
New England.....	2,109	480	1,088	431	1,719	552	1,428	364	1,462	602
Middle Atlantic.....	1,365	186	1,410	196	1,150	196	961	183	1,076	169
East North Central.....	936	2,194	822	2,138	692	2,286	529	1,507	517	1,827
West North Central.....	1,243	1,549	814	1,753	778	1,441	514	1,033	412	1,080
South Atlantic.....	1,187	521	1,123	474	875	242	725	298	478	238
East South Central.....	469	41	405	68	141	27	378	55	418	41
West South Central.....	762	356	788	331	587	430	480	236	123	400
Mountain.....	8,891	296	6,479	183	6,934	313	5,527	252	5,656	192
Pacific.....	2,324	422	1,949	425	2,544	529	1,630	398	2,220	408

¹ The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1930 and 1929, respectively.

² Boise, Idaho, and Reno, Nev., not included.

Summary of weekly reports from cities, May 4 to June 7, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929—Continued

SCARLET FEVER CASE RATES

	Week ended—									
	May 10, 1930	May 11, 1929	May 17, 1930	May 18, 1929	May 24, 1930	May 25, 1929	May 31, 1930	June 1, 1929	June 7, 1930	June 8, 1929
98 cities.....	264	289	231	290	210	268	186	269	213	209
New England.....	284	260	239	247	288	281	281	260	230	191
Middle Atlantic.....	281	209	234	220	215	196	171	193	196	135
East North Central.....	321	454	311	472	229	449	142	447	296	321
West North Central.....	233	277	250	281	300	208	209	179	260	165
South Atlantic.....	222	243	157	210	150	159	115	273	156	300
East South Central.....	155	130	27	103	115	137	81	123	108	96
West South Central.....	101	309	78	179	52	118	15	160	78	76
Mountain.....	360	52	223	104	292	113	94	96	192	78
Pacific.....	151	282	140	207	113	336	83	246	109	270

SMALLPOX CASE RATES

98 cities.....	24	11	23	11	20	14	16	9	20	8
New England.....	2	2	0	0	0	7	0	0	0	0
Middle Atlantic.....	0	0	0	0	0	0	1	0	1	0
East North Central.....	23	17	16	14	10	20	13	15	8	17
West North Central.....	99	27	123	15	108	15	55	15	116	12
South Atlantic.....	0	0	4	2	2	4	9	0	4	2
East South Central.....	7	27	81	14	34	27	34	7	34	14
West South Central.....	41	8	22	50	11	15	15	19	22	8
Mountain.....	77	26	60	148	69	35	60	52	27	52
Pacific.....	97	39	54	14	83	75	57	27	68	14

TYPHOID FEVER CASE RATES

98 cities.....	7	11	8	9	7	8	7	7	8	8
New England.....	0	11	9	9	18	7	11	2	4	7
Middle Atlantic.....	4	3	7	6	4	5	3	3	6	5
East North Central.....	3	6	2	3	5	3	3	3	4	3
West North Central.....	8	31	8	6	8	8	9	17	0	8
South Atlantic.....	15	15	13	17	11	15	13	19	20	17
East South Central.....	20	27	47	0	27	75	40	34	13	27
West South Central.....	4	53	37	65	11	11	22	19	37	27
Mountain.....	17	0	0	0	0	17	9	0	10	0
Pacific.....	24	7	2	7	7	10	9	2	2	12

INFLUENZA DEATH RATES

91 cities.....	10	10	8	8	6	10	4	7	5	7
New England.....	9	2	0	2	4	7	0	7	0	2
Middle Atlantic.....	10	8	7	8	8	8	4	4	4	5
East North Central.....	9	7	4	7	5	8	4	9	4	6
West North Central.....	3	3	3	0	0	15	3	3	12	3
South Atlantic.....	5	17	18	7	5	6	4	6	9	7
East South Central.....	15	37	44	30	22	45	37	0	15	22
West South Central.....	31	27	4	4	8	27	4	12	11	16
Mountain.....	0	26	9	17	9	9	17	17	19	35
Pacific.....	9	13	15	22	6	6	3	16	3	16

PNEUMONIA DEATH RATES

91 cities.....	137	109	104	106	103	116	80	105	86	90
New England.....	120	90	102	88	100	121	89	106	73	65
Middle Atlantic.....	185	123	130	114	137	129	94	113	106	105
East North Central.....	93	101	68	115	80	118	54	101	59	96
West North Central.....	124	105	106	75	83	123	68	120	130	81
South Atlantic.....	121	109	156	120	101	94	82	112	93	67
East South Central.....	162	149	96	90	88	104	110	112	81	60
West South Central.....	176	94	84	109	88	66	130	66	84	90
Mountain.....	120	87	77	13	120	139	77	113	110	61
Pacific.....	64	94	58	47	43	82	64	63	40	69

¹ Boise, Idaho, and Reno, Nev., not included.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Week ended May 31, 1930.—The Department of Pensions and National Health reports cases of certain communicable diseases in Canada for the week ended May 31, 1930, as follows:

Province	Cerebro-spinal fever	Influenza	Poliomyelitis	Smallpox	Typhoid fever
Prince Edward Island ¹	-----	-----	-----	-----	-----
Nova Scotia.....	-----	2	-----	-----	-----
New Brunswick.....	-----	-----	-----	-----	1
Quebec.....	2	-----	-----	-----	8
Ontario.....	1	2	1	20	5
Manitoba.....	-----	-----	-----	3	-----
Saskatchewan.....	-----	-----	-----	3	1
Alberta.....	1	-----	-----	-----	-----
British Columbia.....	1	-----	-----	2	2
Total.....	5	4	1	28	17

¹ No case of any disease included in the table was reported during the week.

Quebec Province—Communicable diseases—Week ended June 7, 1930.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended June 7, 1930, as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis.....	1	Mumps.....	64
Chicken pox.....	103	Ophthalmia neonatorum.....	1
Diphtheria.....	38	Poliomyelitis.....	1
Erysipelas.....	5	Tuberculosis.....	50
German measles.....	38	Typhoid fever.....	7
Influenza.....	4	Whooping cough.....	27
Measles.....	93		

Ontario Province—Communicable diseases (comparative)—Five weeks ended May 31, 1930.—The following table shows the number of cases of certain communicable diseases, with deaths therefrom, reported in the Province of Ontario, Canada, for the five weeks ended May 31, 1930, as compared with the corresponding period of 1929.

Disease	5 weeks, 1929		5 weeks, 1930	
	Cases	Deaths	Cases	Deaths
Cerebrospinal meningitis.....	10	2	14	7
Chancroid.....	1	1	1	1
Chicken pox.....	576	2	821	1
Conjunctivitis.....	129	9	237	18
Diphtheria.....	23	3	994	2
Erysipelas.....	156	3	194	10
German measles.....	26	3	30	2
Goiter.....	1,889	1	1,883	2
Gonorrhoea.....	526	1	169	1
Influenza.....	1	1	1	1
Measles.....	132	1	236	1
Mumps.....	1	1	2	1
Paratyphoid fever.....	378	1	881	11
Pneumonia.....	6	8	8	1
Polio-myelitis.....	145	240	94	75
Puerperal septicemia.....	86	94	36	1
Scarlet fever.....	72	50	194	75
Septic sore throat.....	35	1	36	1
Syphilis.....	5	5	5	1
Smallpox ¹	432	1	231	1
Tuberculosis.....				
Typhoid fever.....				
Undulant fever.....				
Whooping cough.....				

¹ Cases of smallpox for this period were distributed as follows: Ottawa, 27; Sudbury, 16; Hanover, 7; Rayside, 6; Elderslie, 5; Sullivan, 5; Toronto, 4; Bosanquet, 3; Williamsburg, 3; Bentinck, Neebing, and Welland, 2 cases each, and one case in each of the following places: Chesley, Alfred, Pembroke, Coniston, Wallaceburg, Albion, Elora, Casselman, Lanark Tp., St. Catharines, Listowel, and Brudenell and Lyndoch.

CHINA

Meningitis.—During the two weeks ended May 31, 1930, 11 cases of meningitis, with 10 deaths, were reported in Canton, China.

GREAT BRITAIN

Scotland—Vital statistics—Quarter ended March 31, 1930.—The Registrar General of Scotland has published the following statistics for the first quarter of the year 1930:

Population, estimated.....	4,879,700	Deaths from—Continued.	
Births.....	23,684	Lethargic encephalitis.....	36
Birth rate per 1,000 population.....	19.7	Malaria.....	2
Deaths.....	19,052	Measles.....	355
Death rate per 1,000 population.....	15.8	Nephritis (acute).....	69
Marriages.....	7,298	Nephritis (chronic).....	485
Deaths under 1 year.....	2,598	Paratyphoid fever.....	2
Deaths under 1 year per 1,000 births.....	110	Pneumonia.....	1,006
Deaths from—		Polio-myelitis.....	6
Bronchitis.....	1,533	Puerperal sepsis.....	71
Broncho-pneumonia.....	1,089	Scarlet fever.....	44
Cerebrospinal meningitis.....	63	Syphilis.....	35
Diabetes.....	173	Tetanus.....	1
Diphtheria.....	167	Tuberculosis (pulmonary).....	797
Dysentery.....	2	Tuberculosis (other forms).....	357
Erysipelas.....	68	Typhoid fever.....	4
Heart disease.....	2,585	Whooping cough.....	178
Influenza.....	37		

ITALY

*Communicable diseases—Four weeks ended March 16, 1930.—*During the four weeks ended March 16, 1930, certain communicable diseases were reported in Italy as follows:

Disease	Feb. 17-23		Feb. 24-Mar. 2		Mar. 3-9		Mar. 10-16	
	Cases	Com-munes affected	Cases	Com-munes affected	Cases	Com-munes affected	Cases	Com-munes affected
Anthrax.....	13	12	8	7	16	13	19	18
Cerebrospinal meningitis.....	12	10	19	17	12	11	12	12
Chicken pox.....	311	106	356	139	463	151	522	173
Diphtheria and croup.....	520	285	410	282	681	369	816	414
Dysentery.....			4	1	2	2	15	10
Lethargic encephalitis.....	6	6	3	3	6	5	3	3
Measles.....	3,408	333	3,308	388	2,805	358	4,938	471
Polioomyelitis.....	4	4	3	3	2	2	4	4
Scarlet fever.....	285	116	304	112	354	104	386	161
Typhoid fever.....	262	144	245	137	287	166	379	211

MEXICO

*Vera Cruz—Communicable diseases—Six weeks ended May 31, 1930.—*During the six weeks ended May 31, 1930, deaths from certain communicable diseases were reported in Vera Cruz, Mexico, as follows:

Disease	Week ended—						Total
	Apr 20, 1930	May 3, 1930	May 10, 1930	May 17, 1930	May 24, 1930	May 31, 1930	
Bronchitis.....	2		1	1			4
Cancer.....	2	2	1		1		9
Cerebrospinal meningitis.....	1	2					3
Dysentery.....			1				1
Gastro-intestinal disorders.....	12	8	10	12	10	16	68
Hookworm.....	1				1		3
Malaria.....			2	1		1	4
Measles.....					1		1
Pneumonia.....				1	2	5	8
Syphilis.....	1	1			1		3
Tetanus.....		2			2	1	5
Tuberculosis.....	4	3	6	9	8	4	34
Typhoid fever.....		1		1	2	1	5

*Tampico—Communicable diseases—May, 1930.—*During the month of May, 1930, certain communicable diseases were reported in Tampico, Mexico, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Diphtheria.....		3	Measles.....	9	2
Enteritis (various).....		74	Smallpox.....	6	1
Influenza.....	3		Tuberculosis.....	45	30
Leprosy.....	1		Typhoid fever.....	2	2
Malaria.....	69	6	Whooping cough.....	10	2

PORTO RICO

San Juan—Communicable diseases—Five weeks ended May 31, 1930.—During the five weeks ended May 31, 1930, cases of certain communicable diseases were reported in San Juan, Porto Rico, as follows:

Disease	Cases	Disease	Cases
Diphtheria.....	7	Puerperal fever.....	1
Malaria.....	8	Tetanus (infantile).....	2
Mumps.....	2	Tuberculosis.....	72
Ophthalmia neonatorum.....	1	Typhoid fever.....	1

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

From medical officers of the Public Health Service, American consuls, International Office of Public Hygiene, Pan American Sanitary Bureau, health section of the League of Nations, and other sources. The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

CHOLERA

[C indicates cases; D, deaths; P, present]

Place	Dec 15, 1929- Jan 11, 1930	Jan. 12- Feb 9, 1930	Feb 9- Mar 8, 1930	Week ended—											
				March, 1930			April, 1930			May, 1930			June, 1930		
				15	22	29	5	12	19	26	3	10	17	24	31
China:															
Canton.....			1										1	1	1
Manchuria—Dairen.....															
Swatow.....															
India:															
Bombay.....	12 350	6 461	5 914	1 834	2 278	2 687	4 018	7 436	15 870						
Calcutta.....	6 507	3 906	3 371	1 929	1 225	1 526	2 186	4 345	10 403						
Negapatnam.....								3	1	1	2	3	4		
Rangoon.....								2	1	1	1	3	2		
Tuticorin.....								4			1	1	2		
Indo-China (French):															
Chandernagor.....	138	202	269	97	53	110	94	137	165						
Karikal.....	90	110	153	73	25	51	71	85	118						
Indo-China (see also table below):															
Pnompenh.....	1	12	4												
Saigon and Cholon.....	6	3	3	1	1										
Tuticorin.....	35	3													
Indo-China (see also table below):															
Pnompenh.....	9	1													
Saigon and Cholon.....	1														
Indo-China (see also table below):															
Pnompenh.....	3	11	9	1	2	1	2	17	12	19	28	59	40	48	13
Saigon and Cholon.....	1	2	4	1	5	1	6	10	10	13	22	43	27	24	7

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

CHOLERA—Continued

[C indicates cases; D, deaths; P, present]

Place	Week ended—														
	Dec. 15, 1929, Jan. 11, 1930	Jan. 12- Feb. 8, 1930	Feb. 9- Mar. 8, 1930	March, 1930			April, 1930			May, 1930			June, 1930		
				15	22	29	5	12	19	26	3	10		17	24	31
Philippine Islands:															
Bulacan, Malolos.....															1
Cebu—															1
Bantayan.....															
Santa Fe.....															3
Manila.....															3
Negros—															1
Cadiz.....														11	1
Escalante.....															10
San Antonio.....															7
Rizal—Navatos.....															1
Siam.....	11	3	7				1	8	7	3		12	4	6	1
Bangkok.....	2	4	4					6	3	2		10	2	2	
Nagara Pathom.....	9	3	2				1	1	5	4		5		6	3
On vessel:	1						1	1	2	1		1		2	1
S. S. at Suva, Fiji Islands.....															
S. S. Sutley, at Batavia, from Calcutta.....															1
S. S. Sassari, at Massous, from Jeddah.....															1
On small boat at Port Cebu, from Bantayan Island.....															1

1 Diagnosis not confirmed.

Place	Novem- ber, 1929	Decem- ber, 1929	January, 1930			February, 1930			March, 1930			April, 1930		
			1-10		11-20	1-10	11-20	21-31	1-10	11-20	21-31	1-10	11-20	21-30
			1	2	3	4	5	6	7	8	9	10	11	12
Indo-China (French) (see also table above):														
Annam ¹	2	41	1			2	2			52				60
Cambodia ¹	43	41	71		76	41	3		45	32		18	6	
Cochin-China ¹	15	46	67		110	64	39		21	22	55	48		

PLAGUE

Place	Dec. 15, 1929- Jan. 11, 1930	Jan. 12- Feb. 8, 1930	Feb. 9- Mar. 8, 1930	Week ended—											
				March, 1930			April, 1930			May, 1930			June, 1930		
				15	22	29	5	12	19	26	3	10	17	24	31
Argentina:															
Andalgala, ¹															
Rosario.....	C	P													
Santa Fe.....	C	6													
Villa Luján.....	C	2													
Azores, Ponta Delgada.....	D														
Brazil:															
Rio de Janeiro.....	C	1													
Sao Paulo, ²	D	1													
British East Africa (see also table below):															
Tanganyika.....	C		7												
Uganda.....	C	127	82												
Uganda.....	D	112	70	47	30	40	28	27	19	21					
Ceylon:															
Colombo.....	C	2	4	3	1	1	2	2	1	1		4	1	1	
Colombo.....	D	1	4	3	1	1	2	2	1	1		3	1	1	
Plague-infected rats.....															
Chile: Antofagasta.....	C	1	1	1			1	2							
Chile: Antofagasta.....	D														

¹ Reports incomplete.² On Mar. 11, 3 deaths from bubonic plague were reported in Andalgala, Catamarca Province, Argentina, since Feb. 5, 1930.³ 21 cases of plague with 8 deaths were reported Jan. 23, 1930, in the State of Sao Paulo, Brazil; 15 of these cases were in the city of Sao Paulo.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX--Continued

[C indicates cases; D, deaths; P, present]

[illegible]

15 cases of smallpox were reported Apr. 14 in Costa Rica outside of city of San Jose

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; F, present]

Place	Dec. 15, 1929- Jan. 11, 1930	Jan. 12- Feb. 8, 1930	Feb. 9- Mar. 8, 1930	Week ended—												
				March, 1930			April, 1930					May, 1930				
				15	22	29	5	12	19	26	3	10	17	24	31	June, 1930 7 14
Ivory Coast (see table below).	D		2	1	2			1					1	1		
Macao.....																
Mexico (see also table below):																
Jalisco (State): Guadaluajara.....	D	9	14	3	7	5	7	6	4	8	2			6	1	4
Juarez.....	D	3	2	3			2									
Mexico City and surrounding territory ¹	D	25	30	38	13	21	46	36	19	20	24	30				
Morelos State. ²	D	4	7	21	3	9	13	14	8	14	11	6				
Progreso.....	C													1		
San Luis Potosi.....	D		1											1		
Morocco (see table below).	D		1													
Netherlands: Rotterdam.....	C	1														
Nigeria (see also table below): Lagos.....	D	2	5	2			1	1								
Persia (see table below).	D	1	2													
Philippine Islands: Sarangani and Balut Islands ¹	D	40	18	3												
Poland.....	D	2	2											1		
Portugal: Lisbon.....	C	6	4	7		4	1	2	3	3	5	6	2	2		
Rumania.....	C	1	1	1		1	1	2	2	2	2	2				
Siam.....	C	43	1	2												
Somaliland, British: Boates.....	D	9	1	2												
Straits Settlements.....	D	5	35	19	2	3	1									
Sudan (Anglo-Egyptian).....	D	9	8	2	2	3	2	3	2	2	2	2				
Sudan (French) (see table below).	D	230	220	79	8	5	22	25	9	31	2	1	3	2		
Syria (see table below).	D	65	34	6		2	3	3	1		1	1	13	5	1	4
Tunisia: Tunis.....	C												1			8
Turkey (see table below).	C	20	7	3			2	1			1	3				

Union of South Africa:

Cape Province:

Natal:

Orange Free State:

Transvaal:

Upper Volta:

Zanzibar:

On vessel:

S. S. Talros, at Liverpool, from London

S. S. Karagola, at Zanzibar, from India

S. S. Karagola, at Lourenço Marques, from India

S. S. Elysia, at Port Sudan, from Bombay

S. S. Naldara, at Port Said

Place	No- vem- ber, 1929	Decem- ber, 1929	Jan- u- ary, 1930	February, 1930			March, 1930			April, 1930			May, 1930		
				1-10	11-20	21-28	1-10	11-20	21-31	1-10	11-20	21-30	1-10	11-20	11-30
Belgian Congo.....	C	42	74												
Dahomey.....	C	2	4												
Indo-China (see also table above).....	C	19	19												
Ivory Coast.....	C	245	142	450	148	286			26	261					
Sudan (French).....	C	P	17	229	12	P	201	200	409	371		150	40	16	
Syria: Beirut.....	C	60	25	70	1	7	10	18	31	30		7	7		
Taiwan: Tainboku.....	C	6			31	12	12	12	15	10	2				
	C														
Place	No- vem- ber, 1929	Jan- u- ary, 1930	Feb- ru- ary, 1930	March, 1930	April, 1930	Place			No- vem- ber, 1929	Decem- ber, 1929	Jan- u- ary, 1930	Feb- ru- ary, 1930	March, 1930	April, 1930	May, 1930
Bolivia: La Paz.....	C	22				Nigeria.....			228	263					
British East Africa (see also table above):	C	168	12	12	6	D			45	70					
Kenya.....	C	2	1	4		Persia.....			37	P					
Mexico.....	C	2	4	5	4	D			136	883	215	114			3
Mexico: Durango (see also table above).....	D	4	12	6		C			12	457	66	42			
Morocco.....	C	41	84	74	10	D			12	457	66	42			

¹ During the month of March, 1930, 100 cases of smallpox were reported in Mexico City, Mexico, and surrounding territory.

² Newspaper reports of Feb. 4 show an epidemic of smallpox in Lonsense, Mexico, and vicinity giving 600 deaths in preceding 2 weeks.

³ On Feb. 1, 1930, 317 cases of smallpox with 102 deaths were reported to that date in the Sarangani and Bala Islands.

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